Coachsound

TourMaster-Lite User Manual

GPS Mono/Stereo Audio Server

Model: TML2504

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1. TOURMASTER-LITE SYSTEM OVERVIEW

The Coachsound TourMaster-Lite is a single stereo / two mono channel GPS triggered commentary system that can be played through a vehicles existing radio/audio system conveying consistent journey information to passengers.

GPS tracking is integrated into the unit and automatically plays the tour commentaries in the correct places every time. All commentaries are stored on the unit and are readable/updatable on any PC with a USB connection.

The structure of the system consists of three main components:

1. TourMaster-Lite Head Unit
2. Driver Control Panel
3. GPS Aerial

TourMaster-Lite Main Components

1.1 HARDWARE OVERVIEW

The purpose of the TourMaster-Lite System Head Unit is to receive a GPS signal and play commentary over the existing audio system.

The TourMaster-Lite system has connections on two sides of the system.

1.1.1 HEAD UNIT FRONT VIEW – ELECTRICAL PORTS AND CONNECTIONS

The "Front view" is the side of the TourMaster-Lite with one 6-pin MOLEX plug, 2 RJ45 ports and a USB A/B (printer cable) port.

Head Unit Connections and Ports Diagram

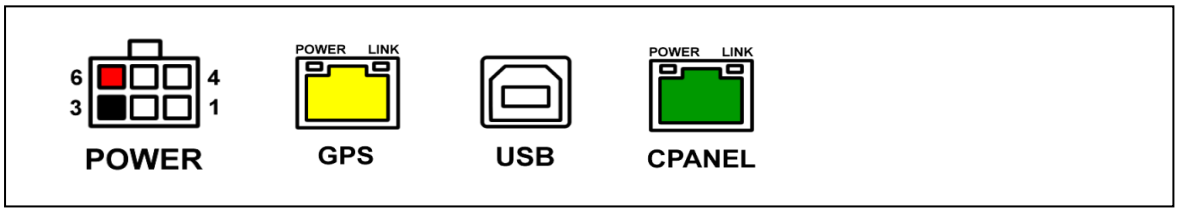

Figure 1: Head Unit Connections and Ports Diagram (Front View)

1. Power Connection
2. GPS Port – the GPS aerial is connected to this port.
3. USB Port - connect the system to a PC/laptop via USB cable to perform updates to the system.
   The USB port is used in conjunction with the Coachsound "Route Builder" software tool to update and synchronize audio tour commentary for the system (Refer to the "*Coachsound RouteBuilder Quick-Start Guide*").
4. CPANEL – the Driver Control Panel is connected to this port with a green CAT-5 cable.

LED status lights – at the top of the 2 RJ45 ports

- "POWER" (CPANEL): This indicator is lit when power is present at the POWER connector.
- "POWER" (GPS): These indicators are lit when the system is turned ON (via the control panel or the PCON connections).
- "LINK" (all ports): These indicators blink to indicate data activity on the port.

LED status lights are provided on the RJ45 ports. All ports are electrically protected; therefore, if a "POWER" indicator goes out when connecting a device to the head unit, then there is probably a fault with the device;

Relay Timer Options

The relay can be programmed to perform different functions when commentary has been manually played or triggered via GPS. Various relay functions can be set via the "Relay Timer" setting in the Route Builder software tool:

- **"ONE-SHOT":** Connection closes once for 1 second at the beginning of each commentary. This mode will be selected when the "Relay Timer" setting in Route Builder is set to '1'. This function can be used to activate an external chime;
- **"FLASH":** Connection alternately opens and closes once per second. Total duration is set by the "Relay Timer" from '2' seconds to '59' seconds. This mode can be used to flash an external sign;
- **"OFF":** Setting "Relay Timer" to '0' seconds deactivates the relay.

1.1.2 HEAD UNIT BACK VIEW – AUDIO OUT CONNECTIONS

The "Back view" is the side of the TourMaster-Lite with audio outputs. This RCA connection provides audio output (1 x stereo or 2 x mono outputs) for connection to an external amplifier or PA.

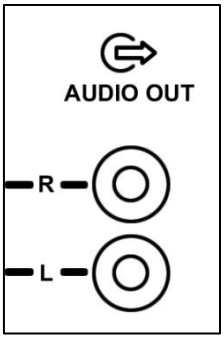

Figure 2: RCA Connections (Back view)

2.0 GETTING STARTED

To get started with your TourMaster-Lite system, you can create your GPS driven tour routes with pre-recorded audio commentary and music for your passenger journeys. The methods to complete this is covered in this section.

2.1 ROUTEBUILDER

The RouteBuilder software tool is used to set GPS waypoints and store pre-recorded tour commentary and journey information.

Refer to the "*Coachsound RouteBuilder Quick-Start Guide"* for step by step instructions for system set up to create/update routes, segments and for adding audio files.

2.2 SYSTEM FOLDERS, FILES AND FORMATS

While connected to a laptop computer using a USB A/B cable (printer cable), the TourMaster-Lite system will appear as a removable media drive. You can interact with this much like any other computer hard drive. The TourMaster-Lite system has four main file folders.

2.2.1 "$COM" FOLDER

This folder holds all route/tour information including GPS information and audio files. Its contents are created using the "RouteBuilder" software tool. The windows installer for the tool can be found in the "\TOOLS" folder on the system.

Note: Do not manually modify any contents of this folder. Any changes or modifications to your route(s) must be done via the "Route Builder" software tool and exported to the system to maintain synchronization with your master Route Builder database.

2.2.2 "MUSIC" FOLDER

The "MUSIC" folder is optional and can contain music or any other audio entertainment. If this folder contains audio, then it will automatically be used as silence filler between audio commentaries. If you do not require silence filler audio, delete the "MUSIC" folder.

The (optional) "MUSIC" folder must be at the root of the system disk;

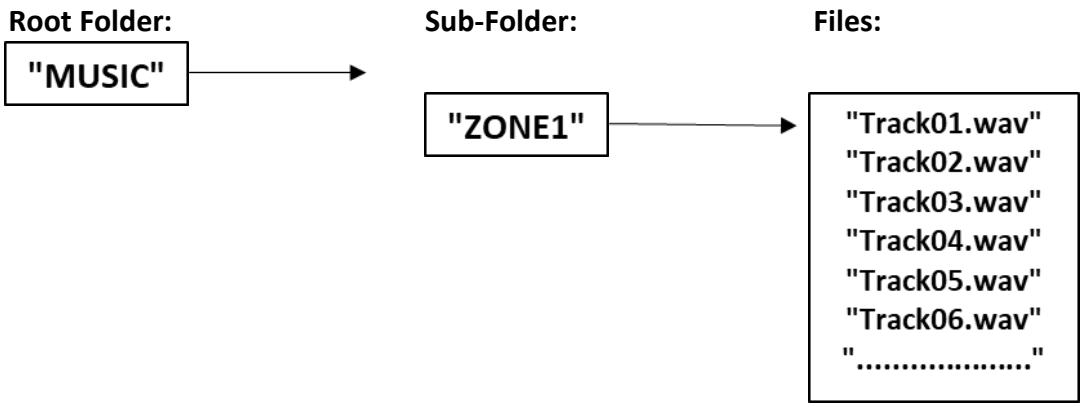

Figure 3: MUSIC Folder Structure

Audio files must be in 44.1kHz stereo PCM WAV format (WMA, MP3 etc are not supported)

To Add Music Files:

1. Connect your laptop to the TourMaster-Lite using a USB (Printer cable)
2. Open file explorer on your laptop
3. Open the appropriate folder per your naming convention ie. TourMaster-Lite (this may show as the extra storage device)
4. Open the "MUSIC" folder.
5. Copy WAV music files to the folder
6. Close file explorer
7. Unplug connection

*Note: Commentary is added directly within the RouteBuilder Software tool.

Music between Commentary functions similarly to switching between channels on a radio. A song does not "pause" for commentary, but will continue as if it had kept playing when commentary is finished.

Music between Commentary will always choose a random audio file to play.

2.2.3 "SYSTEM" FOLDER

This is where system files are kept. Do not modify or delete this folder or any of the included files.

2.2.4 "TOOLS" FOLDER

This folder contains useful tools and also a demo database that can be used in conjunction with the "Route Builder" tool also found in this directory.

2.2.5 AUDIO FILE FORMAT

The recorded audio format is a follows:

- Audio tour commentary: 44.1kHz, 16-bit, PCM (WAV) format in MONO or STEREO
- ZONE (music channel): 44.1kHz, 16-bit, PCM (WAV) format in STEREO only

NOTES: Audio tour commentary can be recorded in mono or stereo, but all audio commentary files within the *same* route must be of identical format.

3.0 SYSTEM OPERATION

This section explains the basic operation of the system of which the driver or guide would typically need to know:

- Powering the system;
- GPS Status messages;
- Manual versus Autonomous mode;
- Selecting Routes and Segments;
- Playing, pausing and stopping audio commentaries;
- Saving GPS Waypoints

3.1 DRIVER/GUIDE CONTROL PANEL

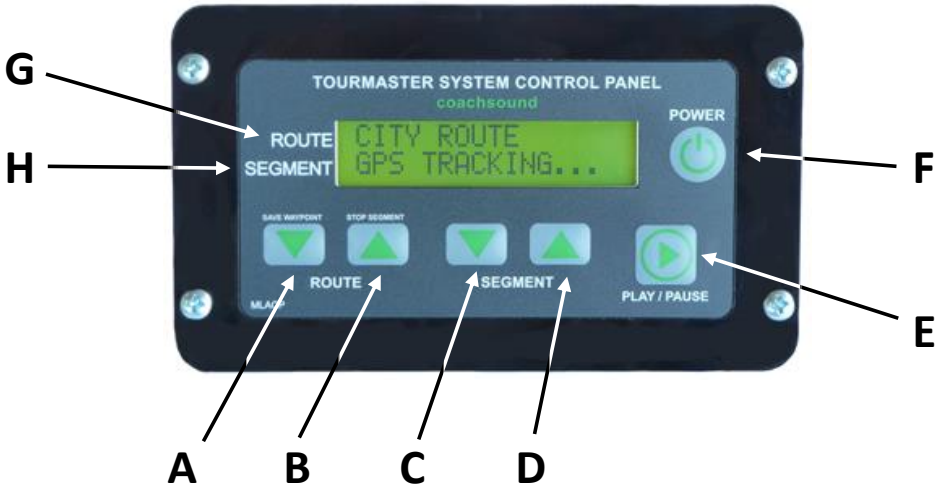

Figure 4: Driver/Guide Control Panel

- **A:** Decrement to previous ROUTE (Tour) + save GPS waypoint
- **B:** Increment to next ROUTE + STOP audio commentary
- **C:** Decrement to previous audio SEGMENT (P.O.I.)
- **D:** Increment to next audio SEGMENT
- **E:** Play/pause current audio commentary
- **F:** Power key
- **G:** Name of selected ROUTE and current audio status.
- **H:** Name of selected SEGMENT and current GPS status

3.2 POWERING THE SYSTEM

Pressing the POWER key will turn power to the system ON and OFF.

To Power the system **ON**:

1. Press the POWER key once, the backlight of the display will light up
2. The System will briefly display a model and firmware version
3. The System will attempt to build an information database
4. The System will look for a GPS signal
5. The System will be turned on, displaying the default Route and a GPS status message.

Sequence of boot messages that will be displayed:

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TOURMASTER MLA2504 v3.03

BUILDING DB PLEASE WAIT...

When the system has booted, the following messages may be displayed:

NO COMMENTARY FOUND	No commentary has been found. The “RouteBuilder” tool must be used to export a valid route to the system.
DEMO ROUTE DEMO SEGMENT 1	The system has successfully booted and has loaded the default Route and default audio segment.

Note: Once booted and if GPS is enabled on the system, the display will show various GPS status messages.

To power the system **OFF:**

1. Press the POWER key once.

2. The system will show “POWER OFF” and a firmware version.

When the system is turned **OFF**, the backlight will be turned off and the display will show “POWER OFF” plus the firmware version of the control panel (this is not the version of the system unit)

POWER OFF CPANEL v3.20

3.3 GPS STATUS MESSAGES

Depending whether a GPS aerial is detected or not, there may be the following GPS messages displayed at power-up or after booting:

NO GPS SIGNAL DEMO SEGMENT 1

"**NO GPS SIGNAL**" indicates that there is a problem with the GPS connection. A technician should check the GPS connection for cable faults or faulty aerial.

NO GPS FIX DEMO SEGMENT 1

"**NO GPS FIX**" is typical at first power-up. The system normally takes a few minutes to gain a GPS fix. Note that the vehicle must have a clear unobstructed view of as much of the sky as possible to gain a GPS fix quickly.

- When the GPS subsystem is operating correctly and all segments in the route have valid GPS information, the following status will appear:

DEMO ROUTE GPS TRACKING...

"**GPS TRACKING…**" indicates that the GPS is fully functional and the system is operating autonomously. User intervention in this mode is not required during normal operation. This is the normal mode of operation when GPS is enabled.

NOTE: If the selected route has one or more segments missing GPS information, the system cannot fully enter autonomous GPS mode. This needs to be resolved before the system can operate 100% autonomously. Please see: "Saving GPS Waypoints" for an explanation of these other status messages referring to missing GPS information.

3.4 MANUAL VS AUTONOMOUS (GPS) MODE

- **Manual Mode**

  System operation without GPS tracking is called "manual mode". In this mode, the Route and Segment must be pre-selected before manually playing the audio segment via the PLAY key. (The selected Route and Segment is displayed on the control panel). After the commentary has finished playing, the system auto-increments to the next segment in the playlist (playlist order is set via Route Builder). The user therefore *only* needs to press the PLAY key at the correct location to continue the audio commentary in order as dictated by the playlist.

- **Autonomous (GPS) Mode**

  System operation with GPS tracking is called "autonomous mode". In this mode, only the required route needs to be pre-selected before starting the tour. Once the route has been selected, there is no need to manually operate the system (unless GPS fix is lost, or it is required to manually play a particular commentary, or to stop a commentary that is already playing) The GPS will auto-trigger all audio segments while en-route based on triggering rules assigned via Route Builder. If the vehicle goes off-route (road works etc.) the system will seek for the next GPS location (segment) that is within the route and will carry on without issue.

3.5 SELECTING ROUTES

Pressing the ROUTE UP or DOWN key (if there are multiple routes on the system) will display the name of the next/previous route and ask for confirmation for the route change. Pressing the PLAY key within 5 seconds confirms and selects the new route; otherwise after 5 seconds, the current route will remain selected and the system will return to its previous (manual or auto) operation.

CITY TOUR PLAY TO ACCEPT

A ROUTE key has been pressed and the next route called “CITY TOUR” has been displayed. Pressing the PLAY key within 5 seconds changes the route to “CITY TOUR”.

3.6 SELECTING AUDIO SEGMENTS

Pressing the SEGMENT keys in either MANUAL or AUTO mode will select the next/previous segment in the playlist as set in Route Builder.

In MANUAL mode, the new segment is displayed on the second line on the panel and will be the segment that plays next when the PLAY key is pressed.

In AUTO mode, changing segments is only required if the user needs to manually play a particular segment while en-route. Pressing either segment key causes the system to temporarily change from AUTO to MANUAL mode. While in manual mode, the panel will show the currently selected segment instead of “GPS TRACKING…”. The user then scrolls to the required segment and presses PLAY. Key inactivity for more than 5 seconds causes the system to revert back to AUTO mode.

3.7 PLAYING, PAUSING AND STOPPING AUDIO SEGMENTS

In MANUAL mode, pressing PLAY will play the currently selected segment displayed on the panel second line. The system will auto-increment to the next segment in the playlist once the current segment has finished playing.

In AUTO mode, the user does not need to manually play the audio commentary unless required. The GPS subsystem tracks the location of the vehicle and automatically plays the correct audio segment based on playback rules set in Route Builder.

If the user requires to play a particular audio segment manually then using the segment keys, scrolls to the desired segment and presses the PLAY key (After 5 seconds of panel inactivity, the system may revert back to AUTO mode)

- To **PLAY** a segment, select the segment and press the PLAY key. “PLAYING AUDIO” will then be displayed:

PLAYING AUDIO: DEMO SEGMENT 1

- To **PAUSE** the audio when already playing (either from manual or auto mode), press the PLAY key once again. “PAUSED AUDIO” will then be displayed. The panel will “beep-beep” once per second to notify the user that the system is in paused mode.

PAUSED AUDIO: DEMO SEGMENT 1

- To **STOP** the audio, the user must first PAUSE the audio. Once paused, press the ROUTE–UP key (a.k.a. "STOP COMMENTARY"). This will stop the current audio commentary and the system will revert back to its previous mode of operation.

3.8 SAVING GPS WAYPOINTS

Before Coachsound systems can be used autonomously with GPS, all audio segments in the route (tour) must have valid GPS information. The best way to do this is via the "Route Builder" tool and this is the preferred method.

An alternative method is to manually save GPS waypoints to specific segments using the control panel. This is done when the vehicle is stationary at the location, or travelling past the location that needs saving.

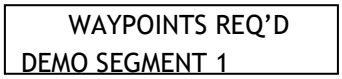
Saving a GPS waypoint to a segment while *stationary* at a location versus *travelling past* a location results in different saved results:

- **STATIONARY AT**: The GPS location is saved, but any heading setting will be removed. Audio for this waypoint will trigger to play irrespective of the vehicles heading;
- **TRAVELLING PAST**: If travelling > 10mph (15kph) past the location, both the GPS location and the vehicles heading is saved. Audio for this waypoint will trigger to play only if the vehicle is on the same heading as when it was saved.

3.8.1 ROUTES MISSING GPS INFORMATION STATUS MESSAGES

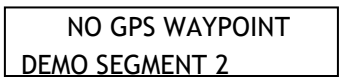
If a selected route has missing GPS information, then certain GPS status messages will be displayed on the panel:

- **WAYPOINTS REQ'D**



"WAYPOINTS REQ'D" indicates that there is missing GPS information for at least one segment in the selected route.

- **NO GPS WAYPOINT**



"NO GPS WAYPOINT" indicates that the currently selected segment is missing GPS information. (In this case "Demo Segment 2" requires GPS information to be saved to it)

If the selected route contains segments with missing GPS information, then en-route these need to be manually selected and played. All other segments within the route will continue to play autonomously via GPS while en-route.

IMPORTANT: Once necessary segments in the route have had their GPS information updated manually, it is essential to import the new GPS information back into "RouteBuilder". This ensures that the master database for your routes/tours is kept in sync with the latest changes. See document *"Coachsound RouteBuilder Quick-Start Guide".*

3.8.2 SAVING A WAYPOINT-MANUAL METHOD

1. Ensure that the system has a valid GPS fix;

2. Before approaching the location, use the segment keys to scroll to the segment that requires the new GPS information;

3. Press and hold the PLAY key and then also press the ROUTE DOWN key (a.k.a. “SAVE WAYPOINT”). This action needs to be performed within 5 seconds otherwise the system may resume autonomous mode.

4. You should have the following message on the panel. If you accidentally play the audio instead, you must pause and stop the audio and try again;

   ```
   SAVE WAYPOINT?
   PLAY=Y, OTHERS=N
   ```

5. Press the PLAY key to enter the “save waypoint” function. You should then see the following message:

   ```
   ARE YOU SURE?
   PLAY=Y, OTHERS=N
   ```

6. When you are either stationary at, or travelling past the location, press PLAY again to confirm the save. It is at this stage that the system reads the most current GPS location from the aerial.

7. Once saved by the system, you should see something similar to the following message. This is the GPS co-ordinates of the location that was just saved. This is displayed so you can write down the co-ordinates if required.

   ```
   LAT: 01234.5678S
   LON: 12345.6789E
   ```

8. Press PLAY again to return to normal operation.

Notes:

- Once GPS waypoints are saved for ALL segments in the selected route, the display will change to “GPS TRACKING…” and the system will become fully autonomous.
- If the selected route has a “Chime Delay” setting, you need to take this into account when choosing the location to save the new GPS position. If the chime delay is set to (say) 3 seconds, then the GPS location to be saved should be 3 seconds *before* you arrive at the location at normal travelling speed.
- When physically adding waypoints, power off the system and turn back on to allow the database to update new information to the selected route.

3.8.3 ERROR MESSAGES WHEN MANUALLY SAVING GPS WAYPOINTS

The following are potential error messages that may appear when trying to save a GPS waypoint:

NO GPS SIGNAL PRESS ANY KEY...	**"NO GPS SIGNAL"** indicates that there was no signal from the aerial when trying to save a waypoint. There may be a problem with the GPS aerial.
NO GPS FIX PRESS ANY KEY...	**"NO GPS FIX"** indicates that the GPS has no fix. Either wait longer for a fix or move to an unobstructed view of the sky.
COULD NOT SAVE PRESS ANY KEY...	**"COULD NOT SAVE"** indicates that there was an unknown problem when saving the GPS location. The new information has probably not been saved.

4.0 WARRANTY INFORMATION

The warranty covers Coachsound products that are purchased directly from Coachsound for 12 months from date of shipping. We cover any defects in parts or workmanship under normal use during the period of warranty. We will repair or replace using new or refurbished parts. The product must be installed and used in accordance with the manual recommendations. To obtain a warranty service, please contact us and we will advise how to proceed.

4.1 COACHSOUND CONTACT INFORMATION

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This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.

2. This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at their own expense.

Modifications: Any modifications made to this device that are not approved by Coachsound Pty Ltd may void the authority granted to the user by the FCC to operate this equipment.

Manual version 5.00