

Coachsound

TourMaster-Lite Installation Guide

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



2. HEAD UNIT - CONNECTIONS AND PORTS

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

Head Unit Connections and Ports Diagram

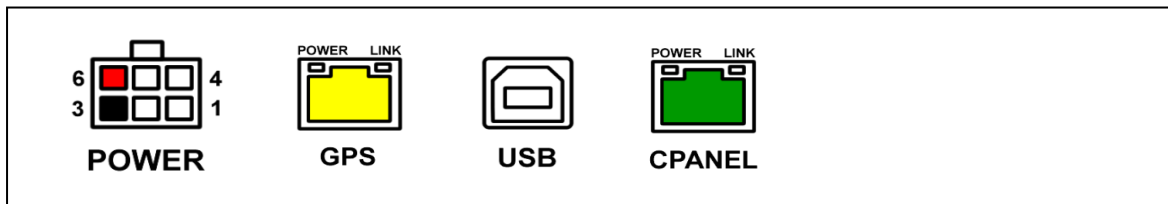


Figure 1: Head Unit Connections and Ports Diagram (Front View)

The TourMaster-Lite system has connections on two sides of the system. The “Front View” is the side of the TourMaster-Lite with 2 RJ45 ports, one 6-pin MOLEX plug and a USB A/B (printer cable) port.

LED status lights

- “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;

2.1 POWER CONNECTION

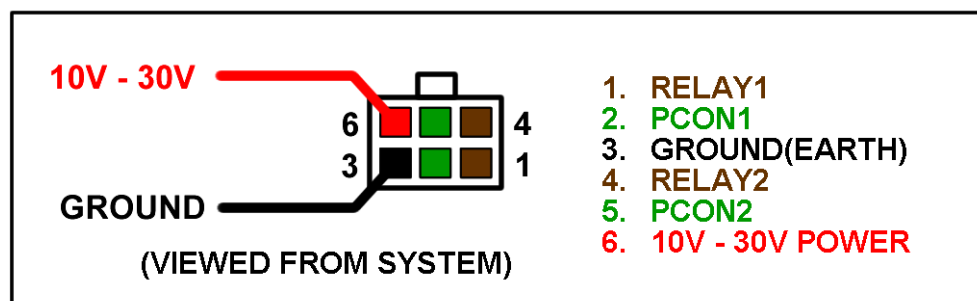


Figure 2: Power Connection (6 PIN Molex Plug)

- 10V-30V DC and GROUND (POWER SUPPLY) (PIN 6):

The system is internally over-current protected but external fuse protection is also recommended for additional safety.

There are two ways to power the system:

Constant Power

Connecting to Constant Power is one of the best options available for the TourMaster-Lite system. The system must be turned off and on manually using the Driver Control Panel. This means that when the vehicle is not in use, the system should be turned OFF to help protect the vehicle battery. Vehicles with weak or susceptible batteries in which the TourMaster-Lite system has been left on will be somewhat discharged.

Ignition Power

Connecting to IGNITION power is a very low-maintenance method of connecting the TourMaster-Lite System. This allows the driver to turn off the vehicle without having to manually turn off the TourMaster-Lite System. This allows for very easy use; however, the vehicle key must be in the IGNITION position for the TourMaster-Lite system to be available.

System power supply input.

- 12VDC to 24VDC nominal voltage;
- Connect to ignition side of key (constant power during cranking) and after isolating switches;
- Recommended external fuse protection: 10 Amp;
- Maximum current (operational – ON via control panel): 5 Amps;
- Maximum current (shutdown – OFF via control panel): 100mA

- **PCON1, PCON2 – (INPUT) REMOTE POWER CONTROL (PIN 2 and 5):**

If a control panel is not used with the system, shorting these two connections together via a switch offers an alternative method of powering up the system remotely.

- **Ground (Earth) (PIN 3):**

This is the negative power source of the TourMaster-Lite unit. Connect to existing ground wires in the vehicle or to a solid grounding point.

A solid grounding point is considered a point at which there is little to no resistance between the grounding point and the negative side of the vehicle battery.

Ensure that grounding points are large metal items, preferably connected to the frame of the vehicle.

- **RELAY1, RELAY2 - SWITCHED OUTPUT (PIN 1 and 4):**

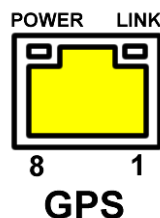
These are contacts of an internal normally-open (N/O) relay.

- Used for activation of a chime or connection to backlit signs;
- Maximum relay contact rating: 1 Amp.
- Do not exceed the current rating of the relay connections

This 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.

2.2 GPS AERIAL PORT



Connect the GPS aerial to this port.

Note that the aerials supplied by Coachsound will have a yellow boot to show it has been modified to be compatible as per the diagram below. If the aerial has not been supplied by Coachsound then you will need to modify as per the diagram below and it is recommended you use a yellow boot to indicate it has been modified.



Figure 3: RJ45 Connections for Garmin GPS16x-HVS

NOTE: The default pin-out of the RJ45 connector on a GPS16x-HVS aerial that has NOT been supplied by Coachsound will differ to the colour code shown above and must be rewired.

To determine proper communication between the system and GPS aerial, check that the LINK indicator is blinking on the GPS port when the system is powered and operating. The “LINK” indicator will blink once per second when the aerial is operating correctly. If “LINK” does not blink, then there may be a fault with the aerial or cable. If the “POWER” indicator goes out when connecting the aerial there is a fault with the aerial. Remove and check aerial cable and aerial for faults.

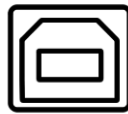
RS232 communication interface to NMEA 0183 standard GPS receiver. The TourMaster-Lite system has been tested to work with the Garmin GPS16x-HVS aerial.

Other aerial brands/models are not tested nor guaranteed.

Required aerial settings are:

1. 4800 baud rate
2. NMEA-0183 GPRMC sentence output (single sentence output)
3. With or without sentence checksum

2.3 USB PORT



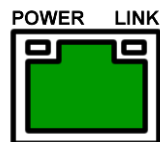
USB

Connect the system to a PC/laptop via USB cable to perform updates to the system.

When the system is connected via USB cable to a PC, the control panel will display “USB CONNECTED” and the PC will show the system as a separate disk drive within Windows Explorer.

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: “*Coachsound RouteBuilder Quick-Start Guide*”).

2.4 CONTROL PANEL PORT



CPANEL

Connect the driver/guide control panel to the system via this port using the supplied green CAT-5 cable.

The “LINK” indicator LED will blink when keys are pressed on the control panel. If the “POWER” indicator goes out when inserting the control panel cable, there is a fault with the panel or panel cable. Remove and check cable and panel for faults.

2.5 AUDIO OUT

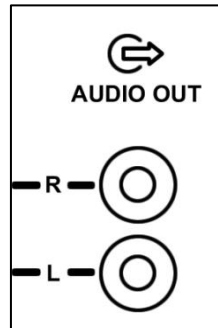


Figure 4: RCA Connections (Back view)

This RCA connection provides audio output (1 x stereo or 2 x mono outputs) for connection to an external amplifier or PA.)

SPECIFICATIONS:

- Connectors: RCA Stereo
- Audio Level: 0-1V RMS into 10k Ohms (Line level)
- Output impedance: 100 Ohms (100R)

3. DRIVER CONTROL PANEL

The Driver Control Panel allows the user to control the TourMaster-Lite system. See the “TourMaster-Lite User Manual” for more information on using the driver control panel with the system.



4. INSTALLATION AND DIMENSIONS

4.1 HEAD UNIT INSTALLATION AND DIMENSIONS



Head Unit Installation Notes:

- Install in a dry, dust free, secure environment free of water, condensation, splashing, moving objects and other environmental hazards;
- Near the driver control panel and GPS aerial location;
- With easy access to the USB port for updates via laptop.
- The unit has 6 mounting holes on the lips for fastening
- Allow 75mm clearance for cable connections to the unit;
- The units are often installed under a dashboard, in an electrical cabinet or mounted on the wall in a safe area
- In some cases where “Ground Looping” may be an issue, mount the TourMaster-Lite System on a wooden board.

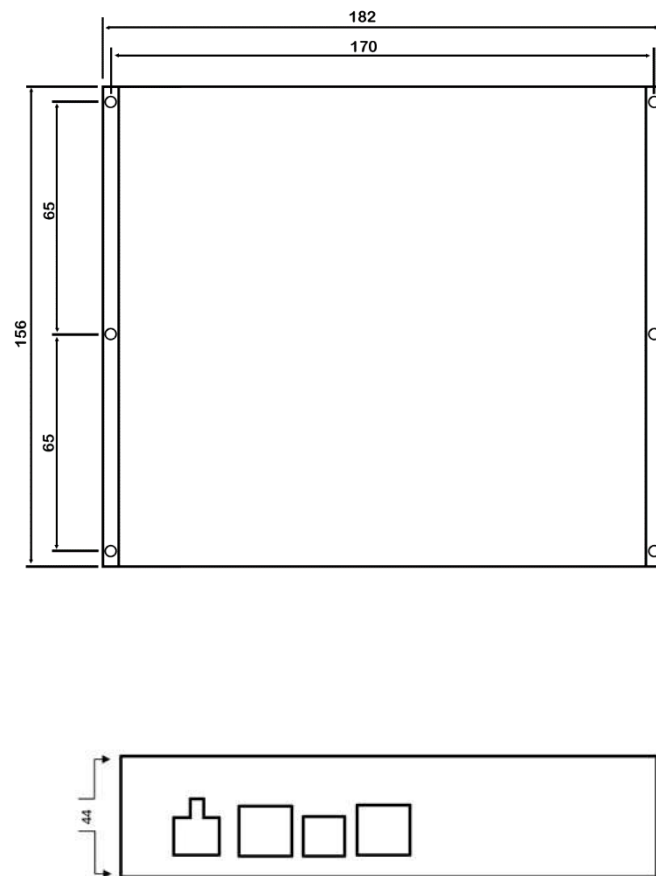


Figure 5: TML2504 Head Unit Dimensions

4.2 DRIVER CONTROL PANEL (DCP) INSTALLATION AND DIMENSIONS



Driver Control Panel Installation Notes:

- Allow 50mm clearance for cable connection to the unit;
- Mount in dry, dust free environment (the driver control panel is not waterproof);
- Out of direct sunlight and weather (do not mount next to windows that can be left open);
- Mount within easy view and operation for the operator;
- Display contrast is adjustable with a small screwdriver via the hole in the rear of the panel;
- Connect to the head-unit's "CPANEL" port via supplied CAT-5 cable;
- The bracket has 3 mounting holes

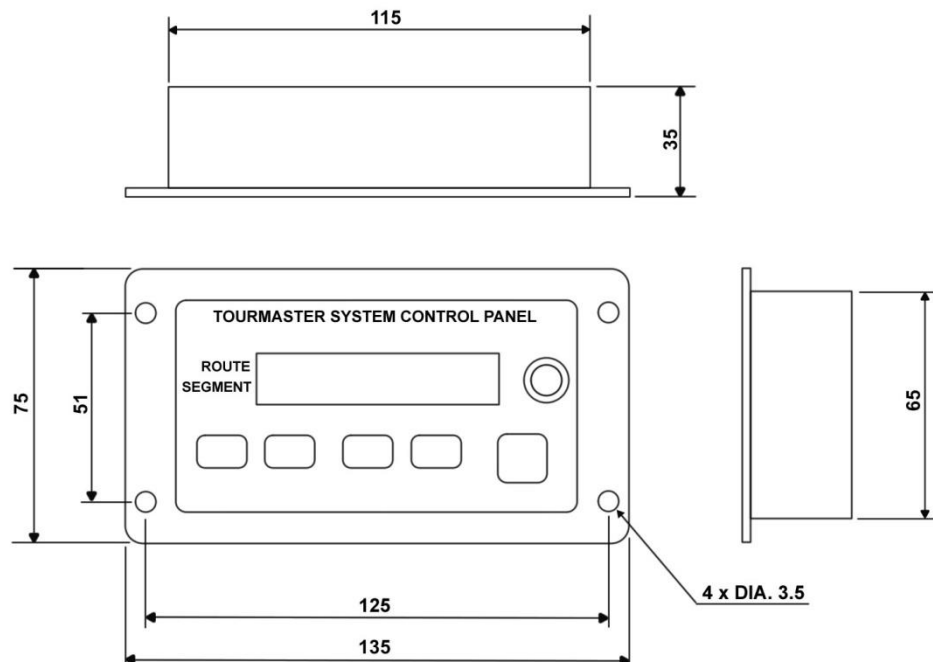


Figure 6: In-Dash Driver Control Panel

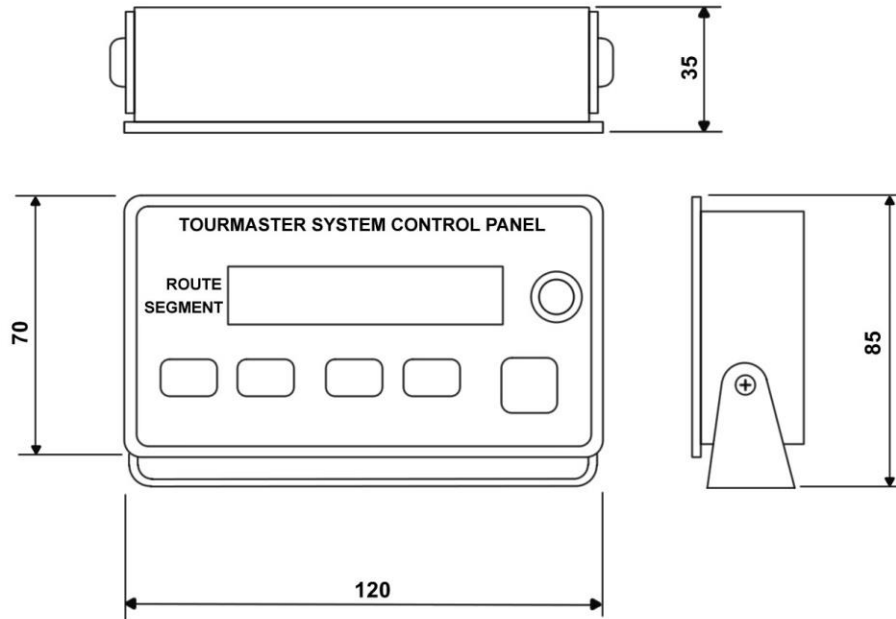


Figure 7: Top Mount Driver Control Panel

4.3 GPS AERIAL INSTALLATION AND DIMENSIONS



* Supplied cable length is 5m (15 ft)

The GPS aerial should be located:

- On top of vehicle roof with an unobstructed view of the sky;
- Away from other aerals such as RT and radio;
- In a location where it will not be damaged by low hanging tree branches etc.
- Within 5m (15ft) installed cable length from the location of the head unit
- As close to the centre of the road as possible.

Method to secure aerial to the roof:

- With sealant/adhesive such as “Sikaflex 227” or similar (preferred and easiest method);
- 3 x M4 screws as per drill pattern shown in diagram below.
- In many cases, a hole will be drilled at the GPS receiver location, allowing the wiring to pass directly into the vehicle. This hole and the bottom of the GPS receiver should be siliconed thoroughly with clear 30 year exterior silicone to provide good grip.

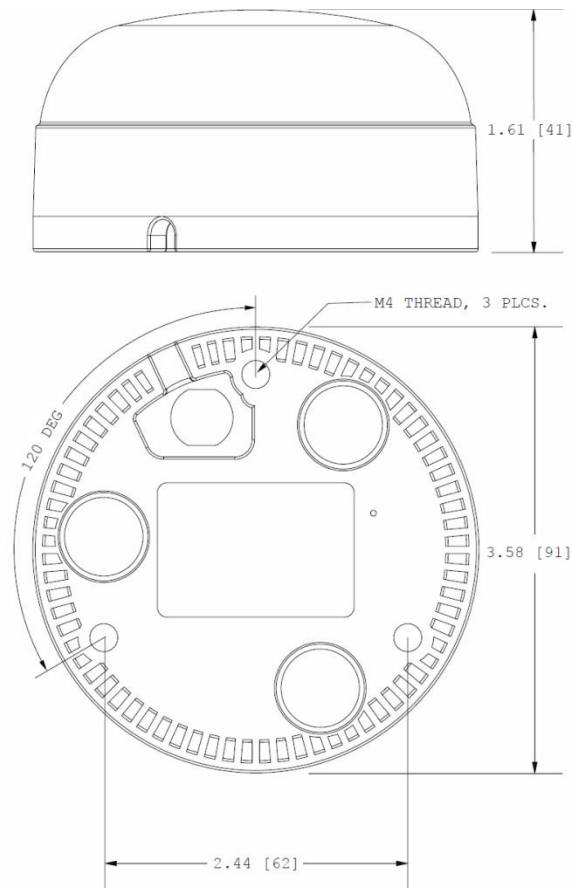


Figure 8: GPS Aerial Dimensions

4.4 GENERAL INSTALLATION PROCEDURE GUIDE

The following steps provide a general overview of a standard installation. This may vary depending on the vehicle and specific requirements.

1. Identify where the main components are to be mounted
2. Identify wiring routes
3. Mount the TourMaster-Lite head unit, hook up power and ground
4. Mount the Driver Control Panel (DCP). If it will not be using the same wire routing as the GPS cable, route the Driver Control Panel cable to the TourMaster-Lite system and plug it in.
5. Install the GPS and route the GPS cable. If the Driver Control Panel cable and GPS cable will be near each other, run these two together to save work if possible. Plug in the GPS cable.
6. Connect TourMaster-Lite RCA Audio outputs to the vehicle's existing audio system input
7. Confirm all connections are correct
8. Power on the system and check that the Driver Control Panel reads "GPS Tracking" (ensure vehicle in an outside location where it will pick up a signal).
9. Note: If it displays "Searching for GPS" for a few minutes, this is normal for first time operation.
10. Test the vehicle in a GPS route to ensure performance.

4.5 TROUBLESHOOTING

1. TourMaster-Lite System won't turn on

Make sure that the key is in the proper position if this system has been installed to the IGNITION wires. Ensure that the 6-pin MOLEX plug and Driver Control Panel are plugged in properly and that no connectors are loose on the TourMaster-Lite system. Check the other components that run on the same circuit. Check fuses and ensure that fuses are large enough to accommodate all components of that circuit.

2. Driver Control Panel Stuck on "Searching for GPS"

Check to ensure that the GPS was mounted in an area that has an unobstructed view of the sky. This will display when moving through areas with many very tall buildings or through tunnels. Ensure the GPS cable was not damaged when it was routed.

3. Driver Control Panel has black squares on the top line and the bottom line is not displaying information.

This normally happens if the TourMaster-Lite system was turned off and on very quickly or if there has been a power fluctuation since the TourMaster-Lite system was turned on. Disconnect the Driver Control Panel at the back of the Driver Control Panel or on the TourMaster-Lite System. Wait 30 seconds and plug the Driver Control Panel back in.

5.0 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.

5.1 COACHSOUND CONTACT INFORMATION:

Email: support@coachsound.com

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PO Box 4454
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AUSTRALIA

Phone: +61 (7) 3103 8557

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.