



WallboxPlayer Install – Packard (multiwire 24)

www.wallboxplayer.com

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This WallboxPlayer is a device that turns your wallbox into a music player. This manual provides basic instructions on how to install the WallboxPlayer.

1 General Description

The WallboxPlayer supports a range of pulse-controlled jukeboxes. Tuning and customization is possible. Power to the player is provided from the wallbox, reducing the need for an extra power supply. Music is stored on a microSD card and can be filled matching the wallbox titles.

The WallboxPlayer board has connectors for most of the connections to be made to wallbox, and speakers. The on-board MP3 player accepts a user-filled microSD card. It has a jack plug for external audio. The board has an optional data microSD slot for supporting functions. There are buttons for HW reset on the microprocessor and ‘Select’ to do the setup, cancel or add a play. Optionally, the board features header connectors for an external 16x2 I2C LCD display. All settings are done in the setup through software and stored. The board can be powered through the external 24VAC and converts this to 5V through the on-board voltage converter. The board is 7.5 cm x 9 cm and can be mounted outside in a separate housing.

The Packard does not require 24V but only has lamps. Power to the board must be 5V -OR- 8-24VAC or DC (through onboard buck converter).

The MP3 SD card slot can be found on the top left under the MP3 player. The contacts should be on your side and visible before inserting. The MP3 files are stored on a micro-SD card. Ensure the card is clicked in. The microSD card MUST be formatted as FAT32 (max 16GB). The number of (.MP3/.WAV) files can be as many as the wallbox can select, with some extra music files that will be played in AutoPlay mode. Music files can be saved in the root, numbered in an /MP3/ folder, or in an Album-mode. See the manual for details on how to best put your music files onto the music SD card.

Speaker output is via the (optional) onboard amplifier, two speakers (max 2*3W) can be connected. These speakers can be within the wallbox or external. The speaker output is via the connector labeled SpL+ SpL-, SpR+ and SpR-. Note the difference between wiring two separate speakers or a 3-lead consolette (see further below in this doc)!

LEDs onboard are used to display status:

- ExtVcc [green] Lights when an external 24V is connected (converted to 5V), supplying the board
- InP [yellow] – lights up when a wallbox pulse is detected
- Cntrl [blue] – option, indicates enabling the control relay e.g. for ‘make selection’ lightbulb
- Ready [green] – shows that system is listening/ready to accept inputs (from wallbox or app).

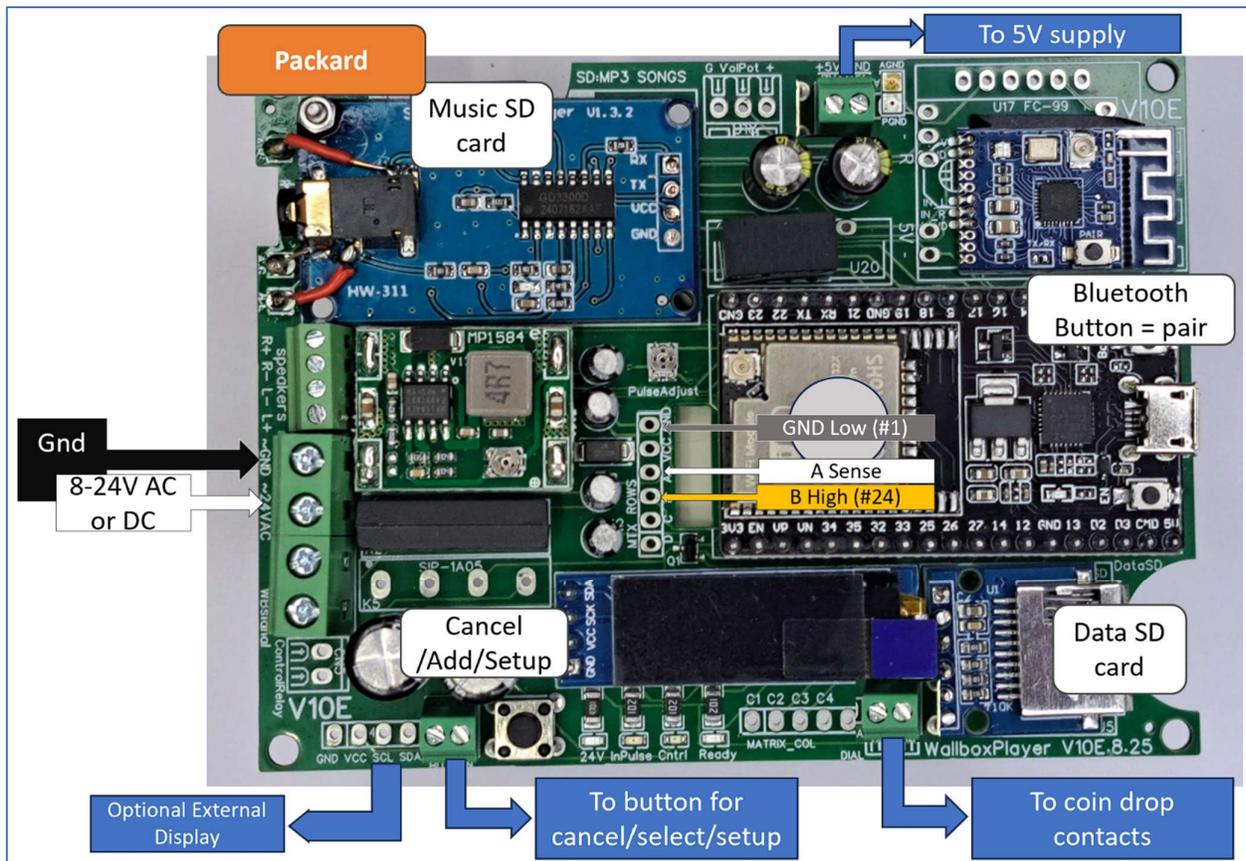
The MP3 player mounted on the board has a red light that lights when the player is ready and blinks when playing a song. The microprocessor mounted on the board has an onboard red light that is on when the system is ready.





2 Installation

Connectors on the WallboxPlayer board:



Overview of wiring to wallbox (Packard):

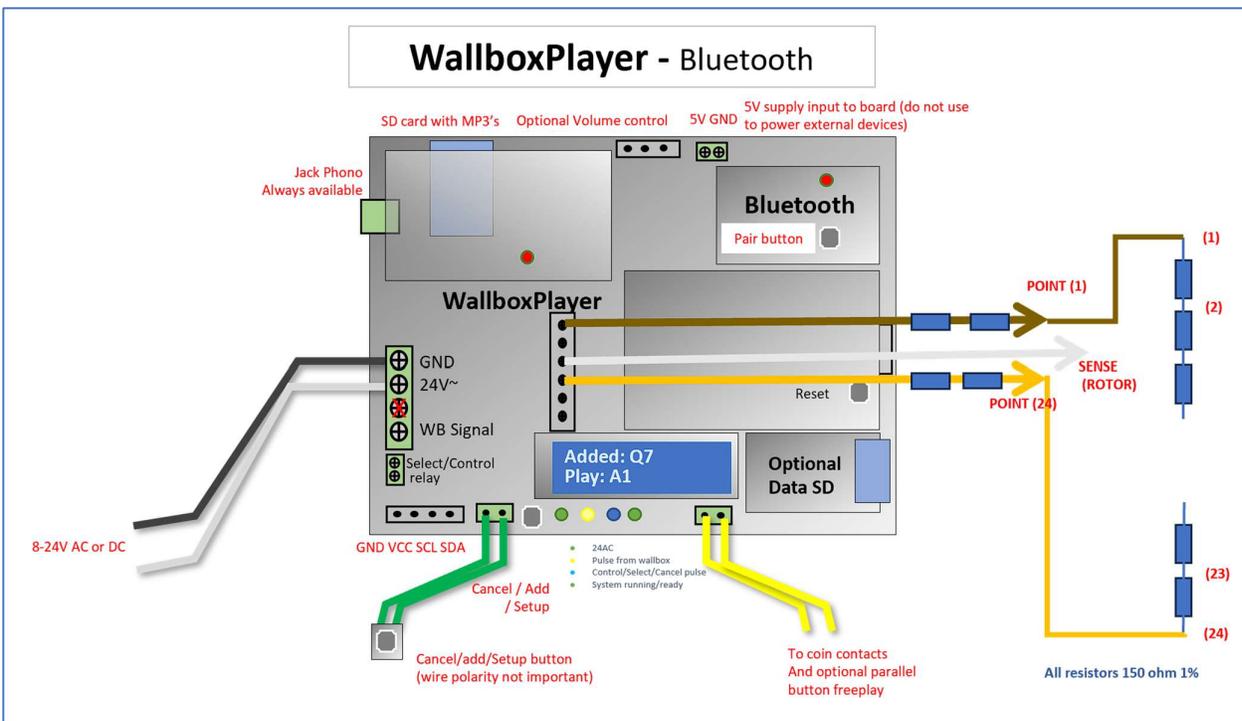
The board can be connected to 8-24VAC or DC or a 5V (note polarity; not 7.5V quickcharge USB chargers!). The 5V green connector is NOT an output. It is to supply the board.

After connections have been made, powering up should show screen startup messages with release version, jukebox and wallbox type (including number of selections), operating mode and number of MP3 files on card. After a few seconds the system will show the green status light and be available for selections and will display 'Select Song'. When during startup, the MP3 files cannot be read, the status LED will blink twice, and the red MP3 player LED will not be on.

3 INSTALLATION:

The kit recreates the original operating conditions of your Wallbox PACKARD PLA-MOR and BUCKLEY wallbox. The installation can be done in 2-3 hours. Put your favorite songs on the microSD card, even more than 24 (for AutoPlay). The selections will be issued as original by turning the wallbox knob to align the label on the side arrows. The music will start after introducing a coin of 5 cents (nickel).

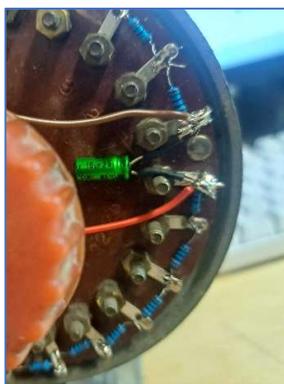
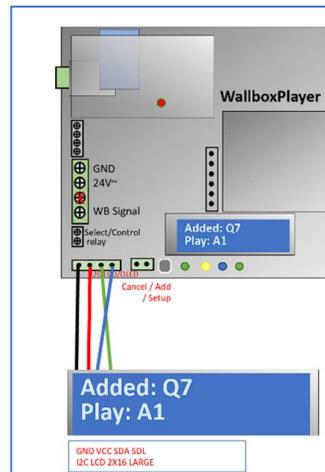
Diagrams overview:



Before performing the installation, you must ensure that the wallbox is fully operational, and the coin unit must accept coins to start music. The various contacts of the internal wheel, and the coin passage in the coin mechanism must be previously cleaned. Clean the Packard and contacts before use. The set will be stripped of its former potential wiring. To facilitate assembly, temporarily remove the red knob, the lateral support, and the power cable connected to the terminal near the axis of rotation of the left side of the wallbox.

Two double resistors are in the brown and red wire. If these are in the wires, the brown and red can be soldered directly to (1) and (24). Assemble the 23 resistors (between 1-2 2-3 2-4 22-23 23-24) with the solder joints and connect brown to (1) and red to (24). Resistors (high accuracy 1%) have no polarity and there is no order. Mount the bipolar capacitor between brown and red for voltage stability.

The result should be as picture. Strongly tighten the nuts and clean contacts and wiper.





Connect the 2-wire coin flipper contacts (yellow on picture - solder onto connection strips). You should now have 5 wires going out that are connected to the WallboxPlayer.

Connect the lamps to a 5 or 6V power supply (green and black as shown on picture). If this is the same 5V as the WallboxPlayer, ensure it provides enough power/current.

Replace the side support and the red knob, the wallbox is ready for operation.

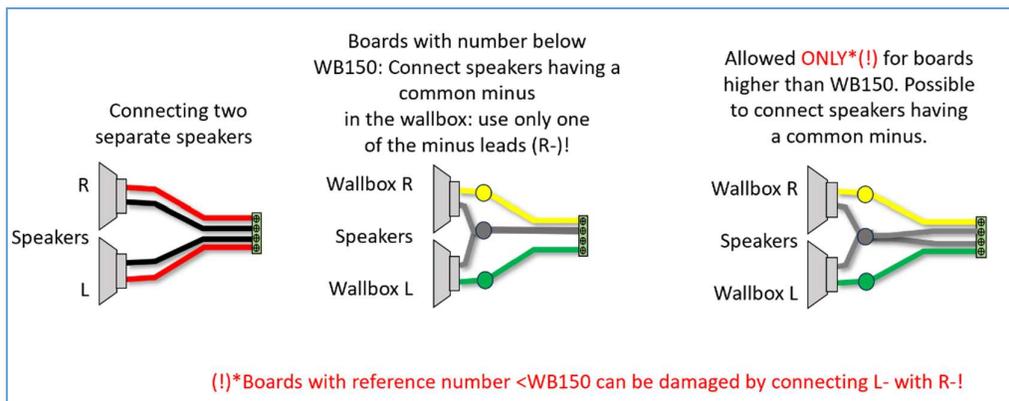


3.1 Mounting the WallboxPlayer and button OUTSIDE the wallbox and making connections

- Mount the board in the external housing
- Mount the select/cancel/setup button in one of the holes and connect the select/cancel/setup button on the board next to the button, polarity/wire order or is not important)
- If there is an optional external display, connect the 4 wires as shown on the photo.
- The three wires from the Wallbox round plate and the 2 wires from the coin flipper must be properly connected to the WallboxPlayer (see connection diagram)
- There are two options to connect the 24V AC adapter onto the Wallbox -OR- onto the WallboxPlayer to power both devices. Not both! The 5V on the green screw connector is NOT an output, do not connect to drive the lamps, you will burn the board. See below.

3.2 Connecting the speakers (for versions with an onboard amplifier)

Important: Connecting the speakers in a wallbox depends on the WB serial number, see below.

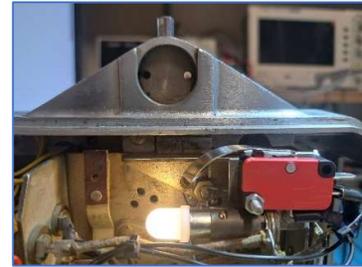


Important: Connecting one or more of the four leads to chassis ground -or- connecting subwoofers to the speaker outputs of the wallbox can cause irreparable damage to the board and amplifier.

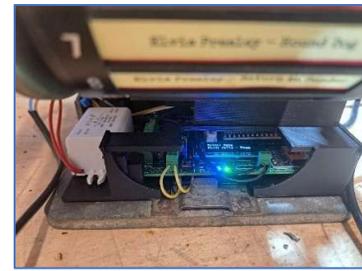


3.3 Other wallbox notes

- LED lamps with same bayonet mount can be used for illumination



- A holder is available for board and coins. Send an inquiry email for 3d printed part or 3MF.



3.4 Connecting power to the WallboxPlayer and powering up

- After powering up, the WallboxPlayer will also power up, and the display will show relevant information on status and number of songs etc. After starting up, "Select Song" will show.
- Press the "Select/Cancel/Setup button on the board to test if song will start. Press again to cancel.
- Make selection on the wallbox and drop a coin or press the 'activate' button. Song will start and number played will be shown.

3.5 Adjustments

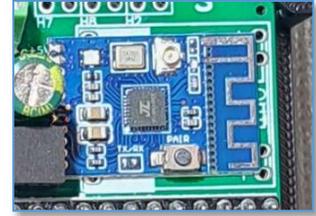
- In setup mode, set "Wallbox_in" to Packard. Restart the player and now go to change the specific settings for the resistor-network. "Resistors_Offset" (default 90) and "Resistors_Divider" (default 140). These will determine how resistor/voltage is translated into a selected number.
- Now check the response of each of the knob settings (1...24) with in the setup "LISTEN" mode. Ideally with these two settings, values are 0.5 more than the selected number. E.g.: 1.5 for 1, 2.5 for 2, 3.5 for 3, ..., 23.5 for 23, 24.5 for 24. They can range from +0.2 to +0.8 but should not be too close to 0.1 and 0.9 as then there is a risk that values over- or under-run.
- Resistors_Offset will shift all the numbers higher (if increased) or lower (if decreased).
- Resistors_Divider if increased will bring the numbers closer together, or if decreased further apart.
- To calibrate/get a start position record ADC values for (1) and (24):
 - $\text{Resistors_Divider} = (\text{ADC}(24) - \text{ADC}(1)) / 23$. E.g. $(3368-148)/23 = 140$; Note that small changes e.g. 139 or 141 can have a big impact.
 - $\text{Resistors_Offset} = \text{ADC}(1)/2$. E.g. $148/2 = 72$. As each step is approximately 140, a value of e.g. 14 will shift everything up or down with 0.1 (1 decimal).
 - Now fill these values in and see if all setting numbers are correct and all decimals fall into the range of 0.2 to 0.8 for best reliability.
 - If incorrect, tune these two values taking into account the effect they have. Note that numbers below 2 always will be translated into (1) and numbers above 23 always into (24).
 - If you really see a very nonlinear response going from 1 to 24, check the resistors or contact.

3.6 Pairing optional Bluetooth (option)

- When paired & connected, the red BT LED blinks twice at ~5 sec interval.



- When idle and unpaired, the red led flashes slowly (~1sec interval)
- Short press the button for unpairing.
- To pair with a Bluetooth device, ensure it is not paired (with other device) now, put the Bluetooth speaker in pairing mode and press (2sec) the pair button, the red led will blink slowly (at ~2sec interval) and start pairing
- For more information look at the KCX BT module documentation.



3.7 Setup

The onboard 'select' button to perform setup serves two functions, its primary function is to cancel the currently playing song or add a song when nothing is playing. The secondary function of this button is used within the setup menu which follows. The setup menu is accessed by pressing the 'select' button for 5 seconds. After the instruction, which will be displayed for a few seconds, subsequent settings will be shown to be modified. Pressing the button will change the value of the item, waiting will show the next configuration item.

The setup menu allows you to configure the following settings:

- **Tools:** This menu choice will allow system updates, reset values, restart and a measure/listen utility mode. "RESTART" will restart the device. Note that the MP3-player will keep playing until early in the startup process. Selecting "DEFAULTS" will set values of settings back to factory defaults. Choices: **NO, RESTART, DEFAULTS, UPDATEMODE, LISTEN, ...**
- **Wallbox In:** This will configure what input signal is detected by the board, the type of wallbox the board is connected to. Compatible choices: **NONE, MP3, Sb_3W1, Sb_3W100, Sb_3W160, Sb_3WA, Sb_3W1_A1B1, Sb_3W1_AltFix, Sb_SC1, Sb_DEC, Sb_DEC-direct, Ami_W40, Ami_W80, Ami_W120, Ami_W200, Roc_1544, Roc_1555, Roc_1558, Wur_5207, Wur_5210, Wur_5220, Wur_5225, Packard, and others...**
- **Jukebox Out:** for WallboxPlayer mode and audio output, this must be **MP3**. For other selections, it will send out a pulse to a connected jukebox.
- **Resistor_Offset** will shift all the numbers higher (if increased) or lower (if decreased).
- **Resistor_Divider** if increased will bring the numbers closer together, or if decreased further apart.
- **Volume:** This will determine the output volume of the MP3 player (jack output and speakers). It can be adjusted from 0 to 24. Choices: **0...24**.
- **Equalizer:** This will select one of the available equalizers (jack output and speakers). Choices: **FLAT, POP, ROCK, CLASSIC, BASS and BOOST modes (+20%). Suggested are Pop or Bass.**
- **AutoPlay_number:** If selecting this number with the buttons, (1=A1 etc.) autoplay starts and plays random songs until selected again. (**0, 1 ... 159, 160, 200 (default is 0). Suggested is 1, first selection.**
- **Control_mode:** Option. This determines the function of the additional on-board relay: **NONE, JBCANCEL, WBCOIN, WBCREDIT, SELECT, ...**
- **AutoPlay_startup:** This value sets the time in seconds until a random song is added to the queue. Selecting 0 will disable this. Setting it to 60 will add song after one idle minute. Choices: **0, 15, 60, 300, 3600.**

4 OPERATION:

- See the WallboxPlayer operation manual for how to select songs, fill the SD card and do setup changes.

Please contact me in case of questions or inquiries or items not described here.

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