



# cool tech zone tangara ESP32 240MHz Dualcore Processor User Manual

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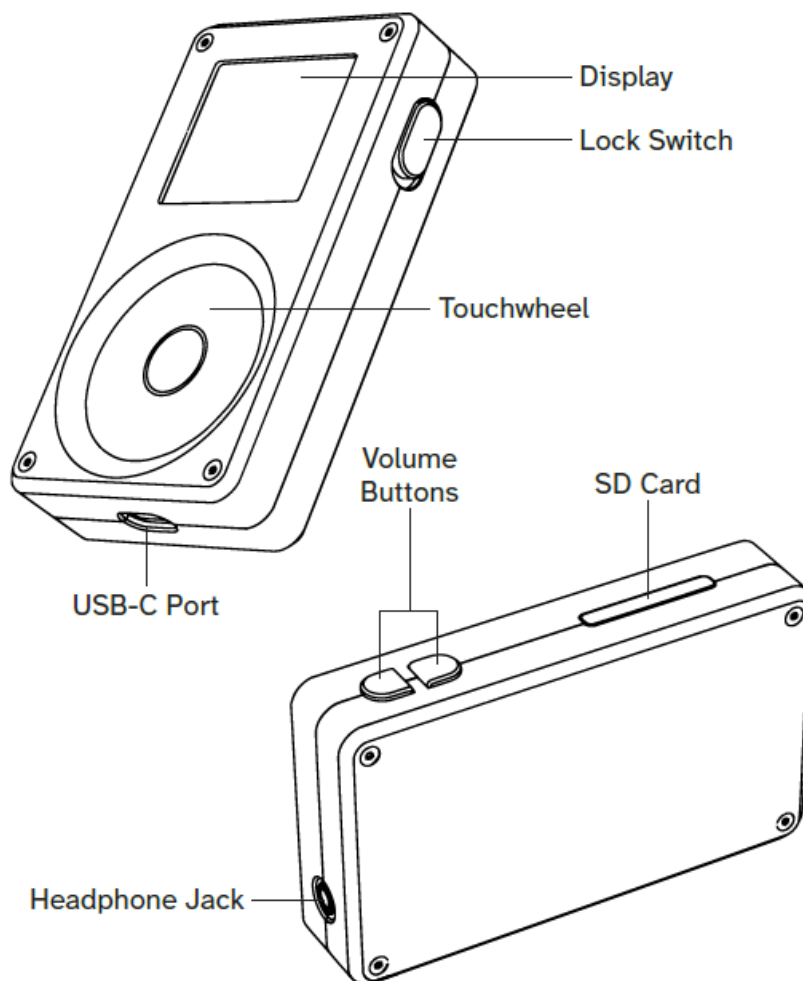
**Cool tech zone tangara ESP32 240MHz Dualcore Processor**

**USER MANUAL**

## Safety Instructions

- Listening to sound at high volumes can damage your hearing. Different headphones may be louder with the same volume setting. Always check the volume level before putting headphones near your ears.
- This device contains a Lithium-ion polymer ('LiPo') battery. Do not puncture or crush this battery. Unplug and remove this battery first before undertaking other repairs on your device. Improper use could cause damage to the device, overheating, fire, or injury.
- This device is not waterproof. Avoid exposing it to moisture to avoid damage.
- This device contains sensitive electronic components. Do not disassemble or attempt to make repairs unless you are qualified to do so.
- Charge the device only with USB chargers and cables that comply with relevant regulations and standards. Power supplies should supply 5VDC, and a minimum rated current of 500mA.

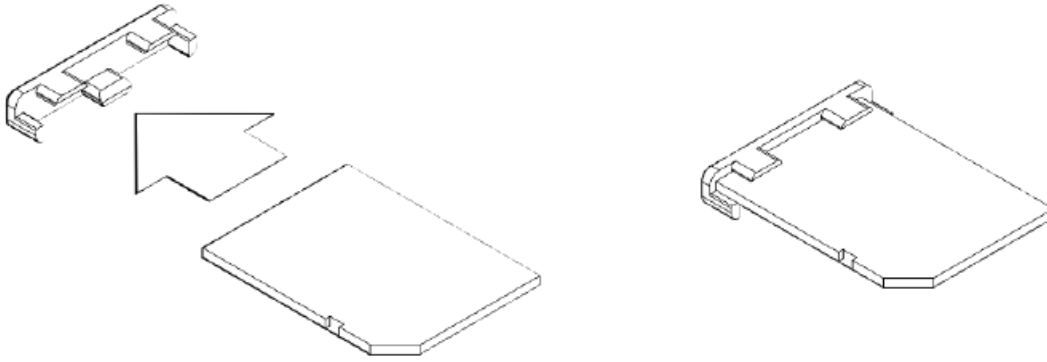
## Device Overview



## Quickstart

This is a brief introduction to using your device. Full documentation and instructions are available online at <https://cooltech.zone/tangara/>.

1. Prepare an SD card with music in an appropriate format. Tangara supports all FAT filesystems, and can play music in WAV, MP3, Vorbis, FLAC, and Opus formats.
2. Install your SD card into the cover as shown, then insert the card into the device.



3. Turn the device on using the lock switch. You should see the Tangara logo appear as a splash screen, shortly followed by a menu.
4. Move your thumb or finger clockwise around the touchwheel to scroll forwards in the menu, or anticlockwise to scroll backwards. Tap the centre of the touchwheel to select the highlighted item. Alternative control schemes can be selected through the on-device settings.
5. Tangara will automatically index music on your SD card into its database, allowing you to browse your music by Album, Artist, Genre, or directly by File. Selecting a track from the device's browser begins playback.
6. When music is playing, the lock switch will turn off the display and disable controls, without interrupting playback. When music is not playing, the lock switch can be used to place the device into a low-power standby mode.

## Bluetooth

Tangara supports streaming audio to Bluetooth audio devices, such as portable speakers. To play music to a Bluetooth device, do the following:

1. Turn on your Tangara, and navigate to the Settings page, then to the Bluetooth option.
2. Enable Bluetooth using the displayed 'Enable' settings toggle, then navigate to the 'Pair new device' screen.
3. Turn on your Bluetooth audio receiver (e.g. your speaker).
4. Wait for your Bluetooth audio receiver to be displayed within the 'Nearby Devices' list. This may require some patience.
5. Select your device, and wait for Tangara to connect to it.
6. Once you have connected, any music selected on Tangara will be played back using the connected device instead of Tangara's headphone output.

If your Bluetooth device does not appear on the list of nearby devices, then try turning its pairing mode off and on again. The product manual for your Bluetooth device may contain additional device-specific troubleshooting steps.

## Disassembly

**Caution:** These instructions are provided for hobbyists to tinker and make their own repairs and modifications. The manufacturer cannot be held liable for damage or injury if you choose to service your device yourself.

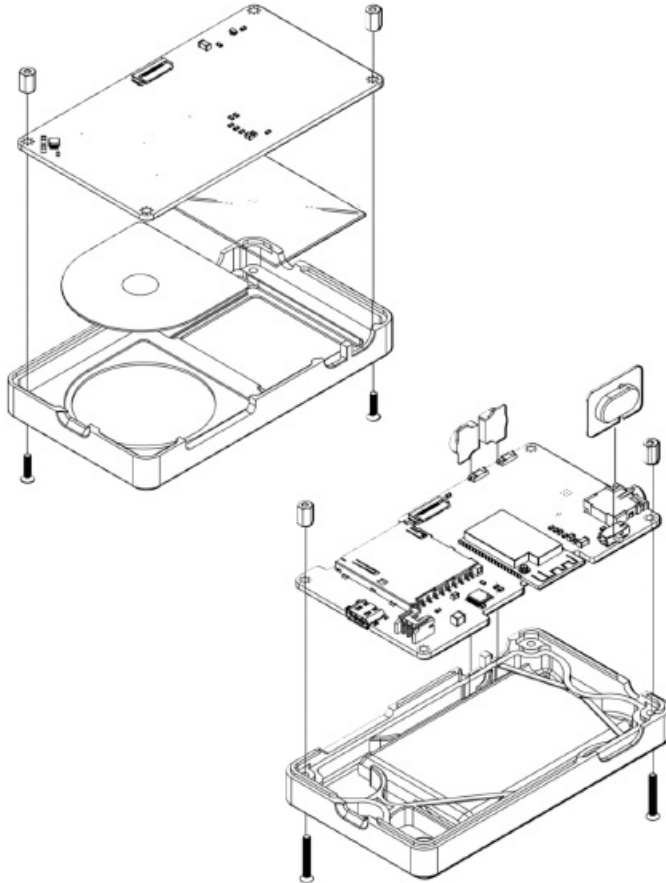
1. Starting with the front of the device, unscrew and remove the top-right and bottom-left screws securing the front of the case.
2. Flip the device over, and unscrew the top-right and bottom-left screws securing the back of the case.
3. The two case halves should now come apart, using only a very gentle amount of force. Holding them apart slightly, carefully remove the button and switch covers.
4. Flip the device back over to the front side, and carefully lift up the left side of the front half. Avoid using too much force, as you do not want to strain the ribbon cable connecting the two halves.
5. Disconnect the faceplate ribbon cable from the mainboard by flipping the latch on the connector up and gently pulling the cable out. Once you have disconnected this cable, the two halves of the device will come apart freely.
6. Unplug the battery by gently pulling on the battery connector whilst twisting it back and forth. Avoid tugging on

the battery cable directly.

7. Unscrew the two remaining front-half standoffs to remove the faceplate and touchwheel cover.

8. Unscrew the two remaining back-half standoffs to remove the battery cage and battery.

To reassemble your device, follow the above steps in reverse; start by assembling the front and back halves with two standoffs securing each, and then screw both halves of the device together. When reassembling, take great care to avoid over-tightening any screws, or you may risk fracturing the polycarbonate case.



## Firmware and Schematics

Tangara's firmware is freely available under the terms of The GNU General Public License v3.0. You can access the source code and developer documentation from <https://tangara.cooltech.zone/fw>. We recommend keeping your device up to date with the latest firmware.

Tangara's hardware design sources are also freely available, under the terms of the CERN Open Hardware Licence. You can access these sources from <https://tangara.cooltech.zone/hw>. We recommend referring to these sources if you wish to undertake any modification or repair to your device.

## Support

If you need any help with your device, you can write us an email at: [support@cooltech.zone](mailto:support@cooltech.zone). We also have a small online forum where you can connect with other Tangara users, at <https://forum.cooltech.zone/>.

Finally, for reporting bugs and discussing technical contributions to the device, we encourage contributions to our Git repository, which is accessible from <https://tangara.cooltech.zone/fw>.

## Regulatory Information

Additional regulatory information is accessible electronically on the device. To access this information:

- From the main menu, access the 'Settings' screen.
- Select the 'Regulatory' item.
- Once in the Regulatory screen, the FCC ID is displayed. The FCC Statement can be viewed by selecting 'FCC Statement'.

## FCC Compliance Statement

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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

**CAUTION:** The grantee is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. Such modifications could void the user's authority to operate the equipment.

**NOTE:** 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 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.

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## Specifications

- Main SOC: ESP32, 240MHz dualcore processor with 16MiB flash, 8MiB SPIRAM
  - Coprocessor: SAMD21, 48MHz processor, 256KiB flash, 32KiB DRAM
  - Audio: WM8523 106dB SNR, 0.015% THD+N
  - Battery: 2200mAh LiPo
  - Power: USB-C 5VDC 1A max
  - Storage: SD Card up to 2TiB
  - Display: TFT 1.8 160×128
  - Controls: Lock/Power switch, 2 side buttons, capacitive touchwheel
  - Case: CNC milled polycarbonate
  - Connectivity: Bluetooth, USB
  - Dimensions: 58mm x 100mm x 22mm
-

## FAQ


**Q: How do I reset the device?**

A: To reset the device, press and hold the power button for 10 seconds.

**Q: Can I charge the device while listening to music?**

A: Yes, you can charge the device via USB-C while listening to music.

## Documents / Resources

|  |   |
|--|---|
| <br><br>User Manual | <a href="#">cool tech zone tangara ESP32 240MHz Dualcore Processor</a> [pdf] User Manual<br>CTZ1, 2BG33-CTZ1, 2BG33CTZ1, tangara ESP32 240MHz Dualcore Processor, tangara ESP3<br>2, 240MHz Dualcore Processor, Dualcore Processor, Processor |
|--|---|

## References

- [ctz cooltech.zone](#)
- [ctz cool tech zone](#)
- [ctz cool tech zone zone](#)
- [cool-tech-zone/tangara-fw - Codeberg.org](#)
- [~jacqueline/tangara-hw - PCB and enclosure design sources - sourcehut git](#)
- [User Manual](#)

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