

TACHYON Official User Manual

Revision 1

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Setup

Table of contents:

- Tachyon base board
- 128x128p Color TFT LCD Display
- Infrared sensor
- Micro-Tamiya splitter cable
- 1x 2mm Screw
- Laser printed enclosure + side cover + rail clamp (Indiegogo “Complete Kit”)

Note: Before handling your weapon, make sure that the magazine is removed and chamber is empty. Mind your own safety and safety of those around you!

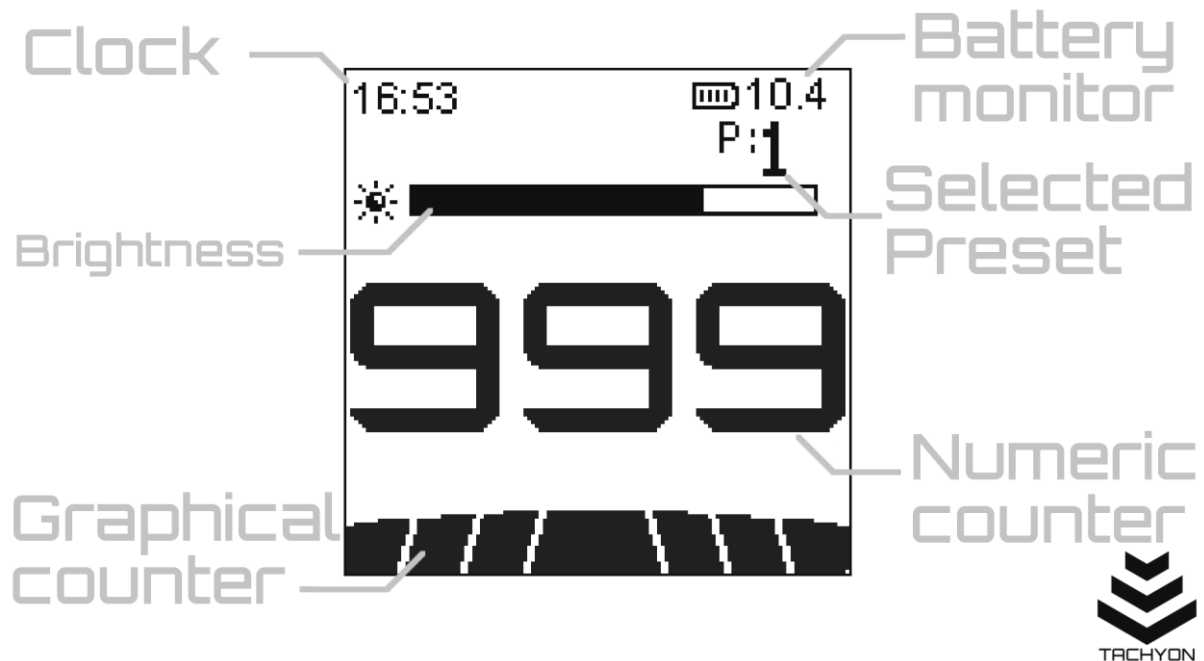
Steps:

1. Remove any muzzle devices if present. Note that on most weapons, the muzzle thread is inverted (counter-clockwise)!
2. Install the muzzle infrared sensor on the thread/barrel. If the spacing between the sensor and the barrel is too great, use tape or other spacers to ensure a good fit. Make sure that no parts of the barrel cover the holes on the inside of the sensor.
3. Tighten the clamp screw on the sensor
4. Plug in the splitter cable between the Weapon’s battery and the Weapon’s power input. (Optional: Run the cable through the weapon’s stock or other parts of preference for cosmetic purposes. This might require partial disassembly of the weapon)
5. Run the cables from the sensor, battery and reload button (+ auto-reload microswitch if used) through the hole on the bottom of the enclosure
6. Plug in the 22-pin display flat connector with contacts on top into the matching 22-pin flat connector on the base board
7. Plug in the cables into corresponding connectors on the Tachyon board
8. (Optional) Plug in any I2C expansion boards if used
9. Insert the board into the enclosure. Use a 2mm screw to affix the board.
10. Close the enclosure with the side cover. Use 3mm screws and nuts to mount the side cover.
11. Attach the whole assembly to a picatinny rail. Line up the screw holes with the rail notches.
12. Attach the rail clamp using 3mm screws and nuts.
13. Affix the manual reload button using any common glue or double-sided tape to a preferred location on the weapon (hot glue is recommended)
14. Power on and profit!

Using Tachyon

Interface and navigation

Upon powering up, you will see the main screen.



In the main screen, press the LEFT or RIGHT buttons to adjust screen brightness. By default, any changes in brightness will not be saved persistently. You can save brightness manually through the settings screen.

Press and release the CENTER button to enter into preset changing mode. After two arrows are displayed around the current preset indicator, press LEFT or RIGHT buttons to cycle through active presets. After a brief time of not pressing any buttons, the system will exit preset change mode and update the ammo counter according to the new selected preset.

Press and hold the CENTER button to open settings. Use LEFT and RIGHT buttons to navigate through listed options and CENTER to select.

While adjusting the color scheme or time settings, hold LEFT or RIGHT buttons to increment/decrement the edited value. User CENTER button to confirm the value.

Ammo counter

Through the settings, you have the option of saving up to 6 presets for 6 different ammo counts (magazines) you use. Setting any preset to 0 will make it disabled (OFF). Disabled presets will be skipped during preset selection. To cycle between available presets, press and release the CENTER button while on the main screen (entering the preset selection), following by LEFT or RIGHT. After the correct preset is selected, wait until the device leaves the preset selection, after which the new preset will be applied.

Upon firing, the ammo count will decrease. When the ammo count reaches 2/3 and 1/3 of the selected preset's full count, the color of the counter UI elements will change based on your settings (default: green -> orange -> red).

After the counter reaches 0, any additional shots will be counted and displayed in negative. This accounts for imperfections in magazines or loading.

At any given time, you can press the manual reload button to reset the ammo count back to full.

Battery monitor

The battery monitor output is displayed on the main screen at all times. To get an accurate reading, make sure that the correct battery type is selected in the settings. Additionally, you can select "Raw output" to directly read the actual battery voltage instead of charge.

Note 1: Battery voltage will decrease as the battery is discharged, the manufacturer specified battery voltage is usually equal to voltage at half charge.

Note 2: While firing, the measured battery voltage (charge) will drop significantly. This is completely normal since the heavy current draw into the motor causes a significant voltage drop in the system.

Real-time clock

The device features a hardware Real-time clock (RTC), with output displayed on the main screen. Time on the clock can be set through the device settings. To experience full precision of the clock, calibration of the clock might be required (See USB Utilities section on page USB-PAGE). Otherwise, a drift of up to 10 s per day might be observed. With calibration, is drops to 0.09 s per day (32 s/year).

While in shutdown, the clock is powered by a **CR1220** coin-cell battery with an estimated lifetime of 3-5 years. If you experience problems with persistence of timekeeping, it is possible that the backup cell needs replacement.