

TACHYON V3 USER MANUAL

Revision 1

Thank you for purchasing a Tachyon!

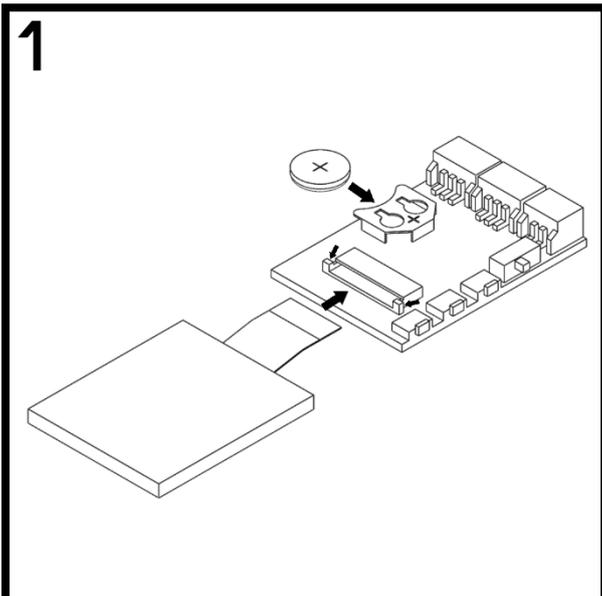
Before you start using it, please take a moment of your time to read this short guide and get the maximum out of your new gadget

If you ever need more help than this manual can give you, visit us at tachyonelectronics.com or leave a message through [fb.com/TachyonElectronics](https://www.facebook.com/TachyonElectronics) or at info@tachyonelectronics.com

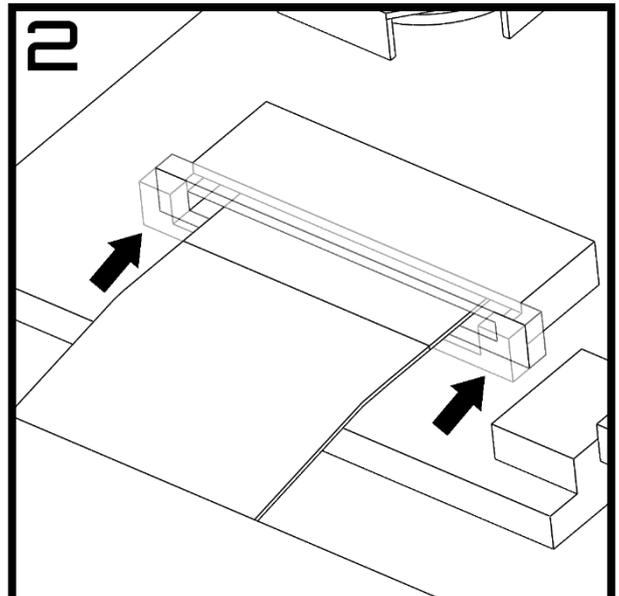
IMPORTANT NOTES

- **Keep the device away from water.** While a few droplets of rain probably won't cause damage, **Tachyon is not fully water resistant.** If the device gets wet, be sure to disconnect the battery and let it dry before using it again.
- **Do not use Tachyon with real weapons. Tachyon is built only for airsoft weapons and attempting to do this will almost certainly result in damage to the device or the weapon itself.**
- **Use only power sources (batteries) with voltage of 6-15 volts.** Higher voltages will damage the device. Voltages under 6 volts will make the device run unreliably or incorrectly.
- **Some features need to be calibrated** before they can function properly

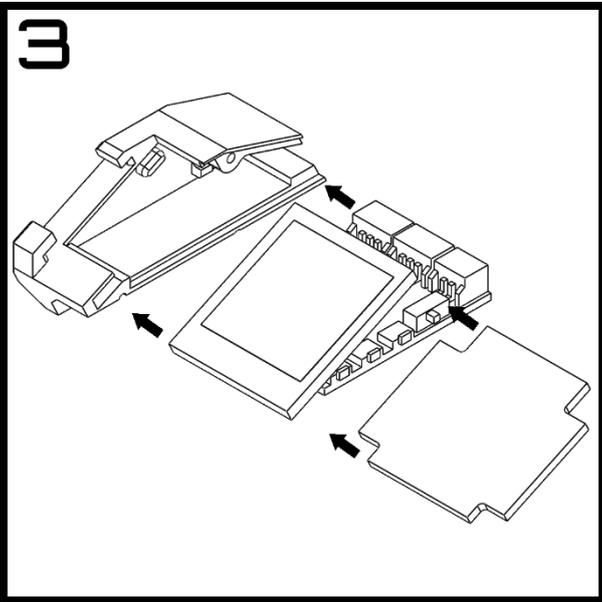
ASSEMBLY INSTRUCTIONS



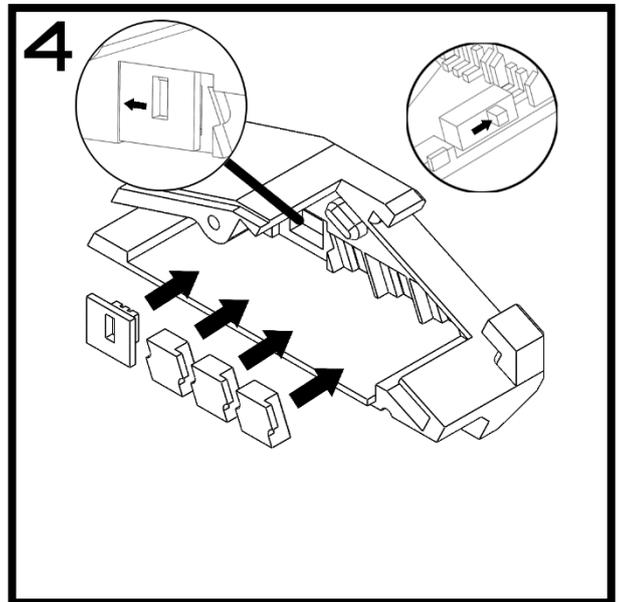
Insert the CR1025 timekeeping battery.
If the display connector is locked, unlock it by pulling on the tabs on its side (see step 2).
Insert the display ribbon cable with **contacts facing upwards.**



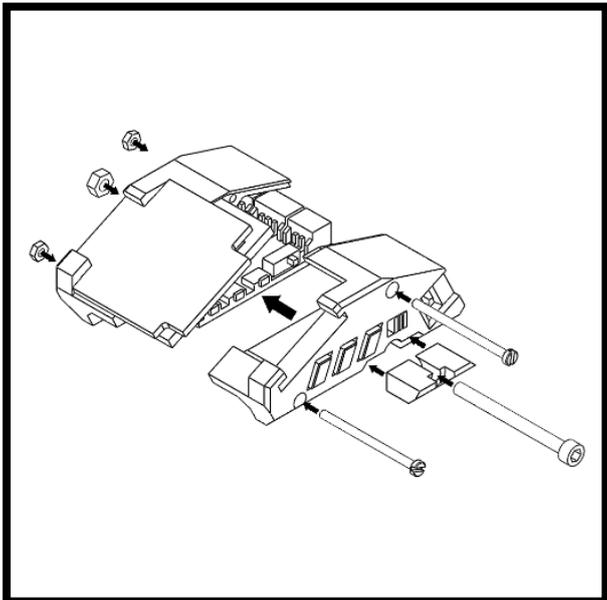
Lock the display connector by pushing on the tabs on its side.



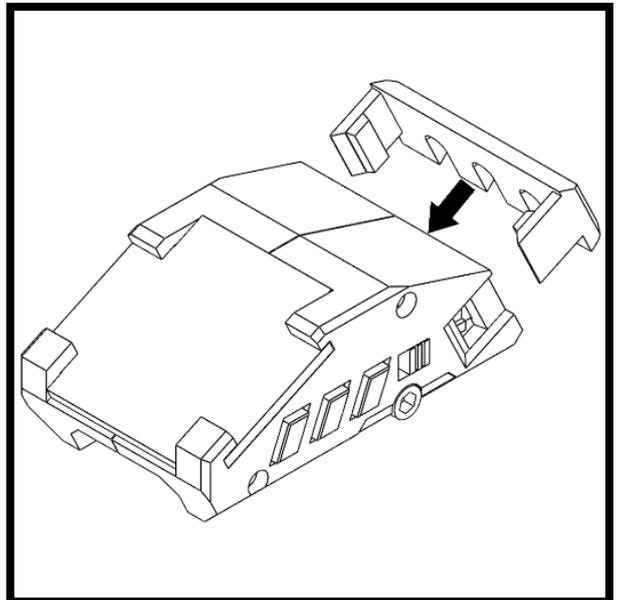
Insert the board and display into the case.
Peel the protective films off both sides of the screen protector and insert it into the case.



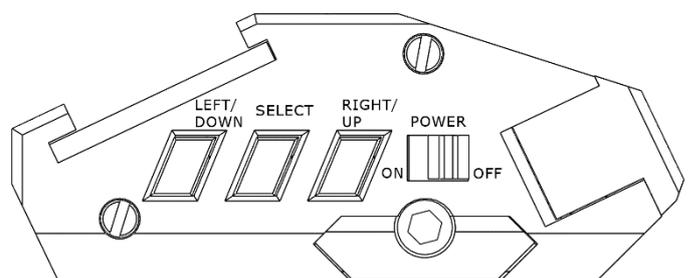
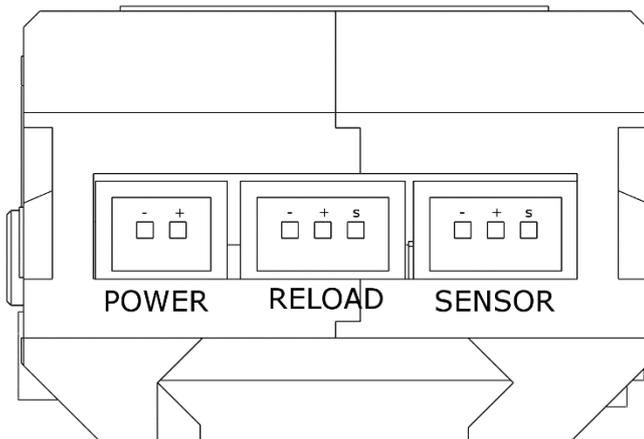
Insert the button and power switch knobs.
 Make sure that both the power switch knob and the switch itself on the main board are in the same position.



Join the two halves of the case and the rail clamp with screws and nuts.



Connect the sensor cable, power cable and external reload button (optional) and snap on the front cap.



BASIC CONTROLS

While at the main screen:

- Press the external reload button or SELECT (this can be turned off through settings) to reset the ammo count
- Press UP / DOWN to increase / decrease display brightness (this is not saved automatically and will revert to default when the device is turned off. The brightness level can be saved only manually through settings)
- Press and release SELECT and then immediately press UP / DOWN to change the current ammo count preset.
- **Press and hold SELECT for 2.5 seconds to open settings**

In settings:

- Press UP / DOWN to navigate through menus
- While editing a numeric value, press and hold UP / DOWN to increase it or decrease it.
- Press SELECT to select the currently highlighted option or confirm edited value.

FEATURES

Ammo counter

- Go to *Settings>Manage presets* to setup up to 6 presets anywhere from 1-9999 BBs for the ammo counter (for different magazines or weapons). Set a preset to 0 to disable it or to -1 to count up instead of down.
- You can choose from 4 different styles for the graphic ammo bar (*Settings>UI Settings>Ammo bar Style*). Also, you can enable or disable ammo bar flashing when empty or change its direction (*Settings>Page 2*)
- Enable or disable SELECT button reload in *Settings>Page 2>Sel Btn Reload*

UI Colors, brightness, screen orientation

- Navigate to *Settings>UI Settings* to set up colors for UI elements, screen background, and 3 different state-indicating colors (“Good”, “Warn”, and “Critical”). The state-indicating colors are used by the ammo counter readout (changing each 1/3 of the ammo preset), the battery charge indicator and the Hopup Assist indicator to provide immediate visual cues about the displayed values without requiring direct focus.
- Select *Settings>Save Brightness* to set the current brightness level as default. The brightness value is not saved when changed at the main screen and reverts to the current default when the device is turned off.
- Use *Settings>UI Settings>Rotate UI 90 dgrs* to rotate the screen image by increments of 90 degrees. Use this when mounting Tachyon sideways to bring the image on screen to the desired orientation.

Battery charge meter

- Set up the used battery type in *Settings>Page 2>Battery type* to get the correct percent readout.
- Supported types are: 8.4 and 9.6V Ni-MH, 7.4 and 11.1V LiPo and also a standalone 9V alkaline battery.
- Alternatively, you can also select *Voltage readout* to display the battery voltage instead of percent of charge.

Note: While shooting, the battery level indicator will display incorrect and inconsistent values as a result of the weapon motor's load on the battery which makes its voltage fall temporarily.

Clock

- Set up clock hours and minutes in *Settings*. Only 24-hour format is supported.
- The clock will slowly drift away from the correct time if not calibrated. See Clock calibration section below.
- The clock is always powered by an on-board CR1025 coin cell battery even when the device is turned off. This battery has a limited lifetime and needs replacement after a few years.

Hopup Assist

- Lights up in “Good” color while the weapon is held straight respective to ground
- Lights up in “Critical” color if the weapon is tilted right or left more than 7.5 degrees
- **Must be calibrated** (zeroed) whenever the device is mounted in a different orientation (*Settings>Page 3>Set HAsst. Zero*)
- Can be turned off in *Settings>Page 3>Toggle HAssist*

Ⓜ Magnetic compass

- The compass has 3 different display modes: bearing, 8 cardinal directions (N-NE-E-...) and 16 cardinal directions (N-NNE-NE-ENE-E-...), or can be turned off completely (*Settings>Page 2>Compass mode*)
- **The compass needs calibration** before it can be used (*Settings>Page 2>Calibrate compass*). Perform the calibration only after the device has been mounted. Re-calibration may be needed if:
 - The device is mounted to a different weapon
 - The device is moved to a different place on the same weapon
 - Additional metallic or electrical accessories are (un)installed on the weapon, near the device
 - You have moved to a different geographic location
- The compass is orientation-independent but sensitive to motion (acceleration). For best results, use when not moving or turning.

Rate of fire / delay meter

- Navigate to *Settings>Measure delay/ROF* to activate
- While active, fire the weapon to measure the delay in milliseconds between individual shots. The corresponding RPM (rounds per minute) rate is also calculated and displayed.
- If a dual-gate sensor is used, this will instead show the time it takes the BB to travel from one gate to the other. This can then be used to manually calculate the weapon's muzzle velocity (m/s or FPS).

CLOCK CALIBRATION

First, set up the **correct** time and mark down the exact date when you do this. Now you will have to wait for a significant period of time (several days), until you observe, that the device's clock is roughly one minute late or forward of the correct time. (We will assume that the difference is exactly 60 seconds)

Now, based on the date you marked down, find out how many days have passed since the time was correct, and solve the following equation:

$$CAL = 983040 * \left(\frac{D * 1440 \pm M}{D * 1440} - 1 \right)$$

Where:

CAL is the resulting calibration value,

D is the number of days that passed and

M is the time difference in minutes: **+1** when the device is one minute **late**, and **-1** when the device is 1 minute **forward**

Now you can specify this value in *Settings>Page 3>Clock calibration*

For more information about this subject, see the Calibration section in the official datasheet for the **MCP79401** RTC integrated circuit.

FACTORY RESET

Factory reset can be performed by pressing SELECT 6 times on *Settings>Page 3>Factory reset*

Alternatively, if the screen is impossible to read (for example if you set an identical background color and UI color), factory reset can be performed by the following procedure:

Turn the device off and on. Hold SELECT for at least 5 seconds. Press DOWN 8 times. Press SELECT. Press DOWN 8 times. Press SELECT. Press DOWN 8 times. Press SELECT 6 times.

TECHNICAL NOTES

- Timekeeping battery: CR1025
- Internal power bus & peripheral voltage: 5 V
- Absolute maximum input voltage range: 5-16 V
- The firmware source code is available on request. Additional equipment is needed to flash a custom firmware to the device.

CONTACT

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