Headtracker

User Manual
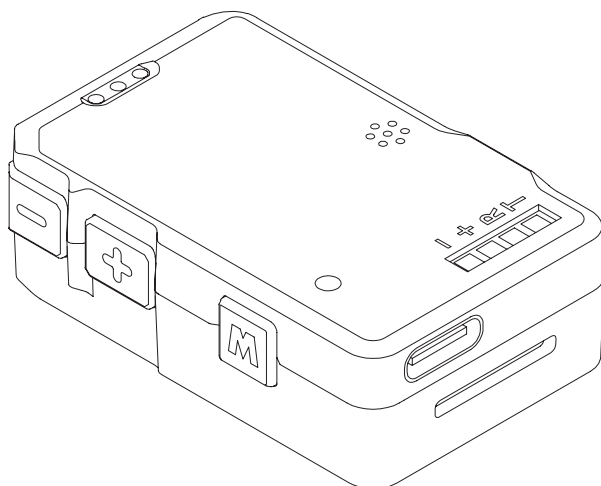
Using this Manual – Legend

⚠ Important   🔍 Tips   ❓ Explanation

Revision History

Date	Document Version
2024.05.30	V1.0

Caution

1. Make sure that the charge power supply for the Headtracker is an USB adopter with an input voltage of 5V. Otherwise, the equipment may work abnormally or be damaged.
2. DO NOT short circuit the power output and GND of expansion port. Otherwise, the equipment may be damaged and may not work properly.
3. Follow the instructions in the user manual when installing the gimbal. Incorrect installation may cause the gimbal to not work properly.
4. Make sure that all connectors are secure and all parts are work properly.
5. DO NOT attempt to disassemble or modify this product. Unauthorized disassembling or modification will void the product warranty.

Catalog

Introduction

The Headtracker supports motion control. The gimbal and aircraft can be controlled using head movements when the Headtracker is installed on an FPV goggles, which provides an immersive high-quality first-person control experience.

The Headtracker supports PPM output and UART output (115200 buadrate, 8N1). It is possible to remotely control the gimbal and aircraft though an RC link or datalink.

Diagram

T: UART_Tx
R: UART_Rx
+: 5V Out max0.1A
-: GND
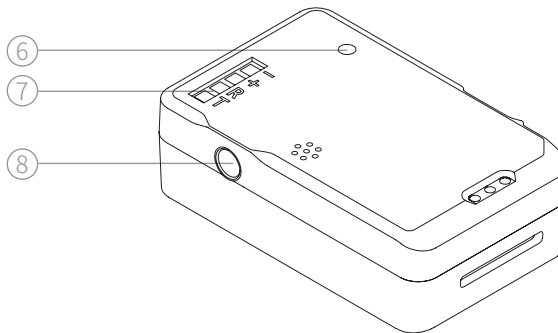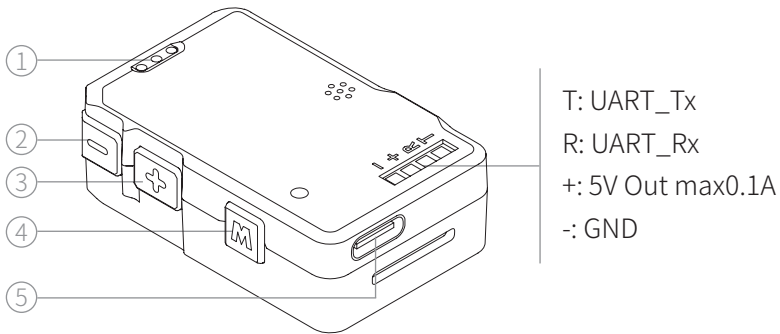
1. Battery Level Indicator   2. Sensitivity - Button
3. Sensitivity + Button   4. Mode Switching Button
5. USB-C Port   6. Charge Indicator
7. Expansion Port   8. PPM Output Port

Using the Headtracker

Installation

Use Velcro or double-sided tape to fix the Headtracker on an FPV goggles. There are no requirements for mounting location and mounting direction.
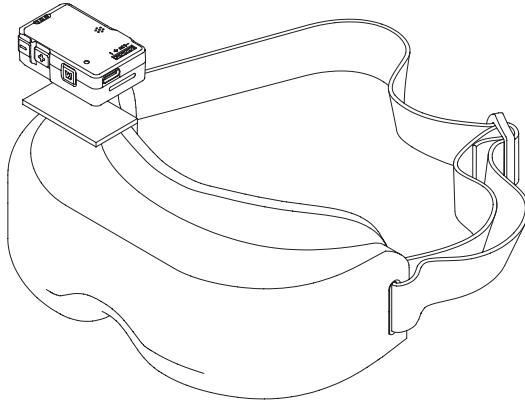
Charge

Use an USB adopter and a Type-C cable to charge the Headtracker. Charge indicator being red indicates the Headtracker being charging and green indicates the Headtracker being fully charged.

The Headtracker alerts with beeps when the battery level is low. It is able to operate 30 more minutes.

🔍 For some brands of dual Type-C cables, there may be cases where the Headertracker cannot be charged. Please try replacing it with a Type-A to Type-C cable.

Powering On/Off

Press once to check the battery level.
Press once, and press again and hold for two seconds to turn on or off.

Calibrating & Firmware Updating

Calibrate the Headtracker and update firmware of the Headtracker with the *CwHeadTracker* software.

🔍 Ensure the corresponding driver is installed in the computer before updating.

Connect the Headtracker

1. Power up the Headtracker. Connect the Headtracker and the computer with a Type-C cable.
2. Run the *CwHeadTracker* software and select the COM port corresponding to the Headtracker. Click "Start Debug".

🔍 For some brands of dual Type-C cables, there may be cases where the computer cannot recognize the Headtracker. Please try replacing it with a Type-A to Type-C cable.
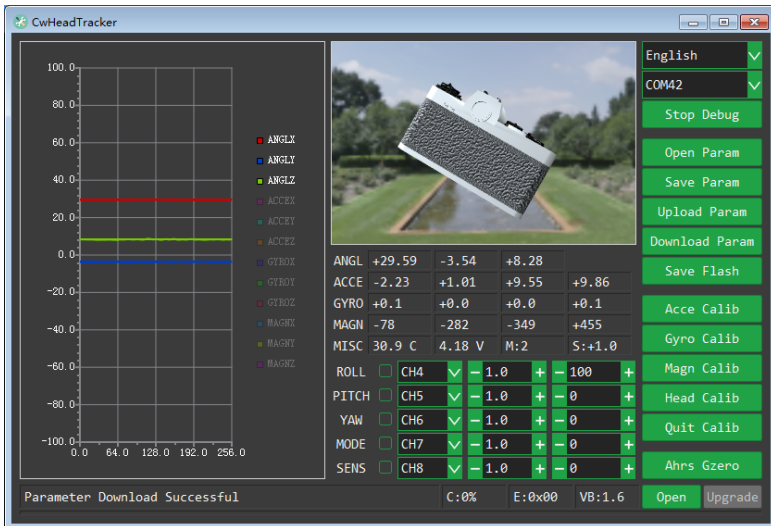
Calibrate the Headtracker

⚠ The Headtracker has been rigorously calibrated before shipment. Unless necessary, DO NOT perform acceleration calibration, gyroscope calibration, or compass calibration.

Acceleration Calibration

Click "Acce Calib" button. Place any one surface of the Headtracker on a horizontal surface and observer the progress bar at the bottom of the interface. Switch to another surface of the module when the progress bar ends. Repeat this process until all six surfaces of the Headertracker are all calibrated. The calibration can be cancelled by clicking "Quit Calib" during the process, without affecting the previous calibration data.

Gyroscope Calibration

Click "Gyro Calib" button. Keep the Headertracker static until the software indicating successful calibration. The calibration can be cancelled by clicking "Quit Calib" during the process, without affecting the previous calibration data.

Compass Calibration

Keep the Z axis of the Headtracker vertical, and click "Magn Calib" button. Rotate the module in the XY plane and observer the progress bar at the bottom of the interface. Turn the Headertracker over 90 degrees when the progress bar ends. Rotate the module in the XZ plane or YZ plane until the software indicating successful calibration. The calibration can be cancelled by clicking "Quit Calib" during the process, without affecting the previous calibration data.
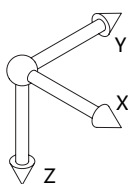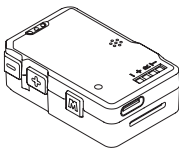
⚠ DO NOT calibrate the compass in areas of strong magnetic interference or near large ferromagnetic objects, or the calibration will be affected.

Heading Calibration

Keep the vision direction of the goggles vertical downwards, and click "Head Calib" button until the software indicating successful calibration.

Attitude Initialization

Click "Ahrs Gzero" button, the attitude of the Headtracker corresponds the zero position of the gimbal. The initialization can also be done by pressing and holding the mode switching button of the Headtracker for two seconds.

🔍 Attitude initialization is required before each using.

Firmware Updating

After the Headtracker is connected to the CwHeadTacker software, click "Open" button and select the firmware file. Click "Upgrade" button, then press and hold the mode switching button until the updating is complete.

🔍 The mode switching button should be pressed and held at all times during updating. If the updating is failed, press and hold the mode switching button and update again.

Controlling the Gimbal

Direct Control

Install the Datalink module on the Headtracker, and install the gimbal on the FPV Base Plate. The Headtracker is able to control the gimbal directly without through the RC link. S.BUS / CRSF control, PWM control and MAVLink control are not available at this time. Please refer to *Headtracker Datalink System User Manual* for details.

PPM Control

Connect the PPM output port of the Headtracker and the remote controller with a training cable. The Headtracker is able to control the gimbal through the RC link. The PPM outputs five channels as below by default.

CH4: Gimbal roll

CH5: Gimbal pitch

CH6: Gimbal yaw

CH7: Gimbal mode

CH8: Gimbal sensitivity

These channels can be configured in the remote controller.

The reverse, mapping, ratio and sub-trim (unit: μs) of the PPM channels above can be configured in the *CwHeadTacker* software or in the RC remoter.

The training cable is not included in the package. Users need to provide their own training cable with a 3.5mm TRS or TRRS audio interface.

PPM

GND

TRS   TRRS
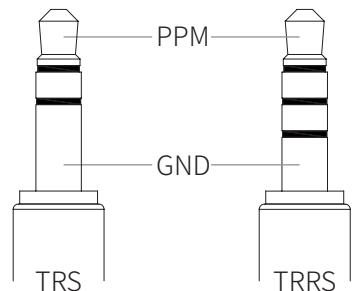
Switching Gimbal Mode

Press the mode switching button once in a connected state to switch the operating mode of the gimbal. Please refer to *C-20T User Manual* for details.

Adjusting Gimbal Sensitivity

Press the sensitivity +/- button once to increase/reduce the gimbal sensitivity by one notch (11 notches in total). Press and hold the sensitivity +/- button for two second to increase/reduce the gimbal sensitivity to maximum/ minimum. Please refer to *C-20T User Manual* for details.

Appendix 1 Specifications

Dimensions	45 x 28.2 x 14.2mm
Weight	16g
Built-in Battery	1.11Wh (3.7V，300mAh)
Operating Time	Approx. 3 hours (Measured with an ambient temperature of 25° C, when installed a Headtracker Datalink module)
Charging Type	5VDC 1A