HI5 2.0

User Manual

Wireless Interactive glove

Contents

Introduction

Thank you for purchasing the HI5 2.0. Please read this user guide carefully and keep it for future reference. If you need assistance, please contact our support team with your order number.

Hi5 2.0 is a VR interactive glove that uses wireless nine-axis MEMS inertial sensors to track the hand movements of the user. It allows the user to perform realistic and precise gestures with their fingers in the virtual VR environment, creating a natural and immersive interaction. Hi5 2.0 can enhance the perception and creativity of the user, as they can explore and manipulate the virtual world in new ways. Hi5 2.0 can be used for various purposes, such as gaming, exhibition, education, simulation training and more.

Package Contents

Hardware list

HI5 2.0 is mainly composed of gloves fabric, wireless sensors, data transceivers and other parts.

The detailed configuration list is as follows:

Name	QTY
Wireless Inertial Sensor	12
Data Transceiver	1
Charging Dock	2
Base Glove	3 Sets (S,M,L)
EVA Travel Case	1
USB TYPE-C charging cable	2
TYPE-C to USB adapter	1
Arm strap	2 (L/R)

Product Diagram
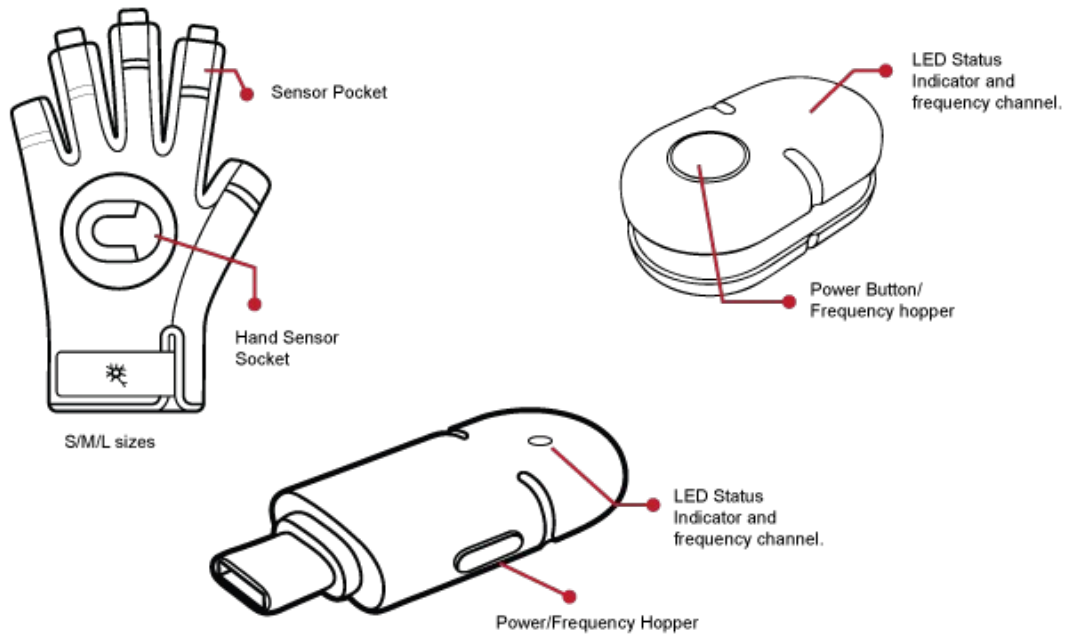
Specifications

Sensors

Name	Parameter	Name	Parameter
Size	27.9 x 16.2 x 11.6 mm	Battery capacity	42mAh
Weight	4.1g	Working hours	5h
Gyroscope range	±2000 dps	Data calculates the frame rate	500Hz
Accelerometer range	±8g	Data output frame rate	120Hz
Minimum resolution	0.02degrees	Delay	<20ms
Static pose accuracy	Roll / Pitch 0.5°, Yaw 1.5°	Waterproof rating	IP66
Dynamic attitude accuracy	Roll /Pitch 1.0°, Yaw 2.0°	Operating temperature	-5˚C - 40˚C
Operating voltage	3.7V	Charging time	1hr

Transceiver

Name	Parameter	Name	Parameter
Size	38.5 x 17.2 x 6.7 mm	Interface type	USB Type-C
Weight	2.8g	Transmission distance	6m

Wireless IMU Sensor

Wireless Inertial MEMS sensors, used to measure posture data. The sensors are attached to the fingertips and the palm of the gloves. Sensors detect the orientation of the hand and fingers.
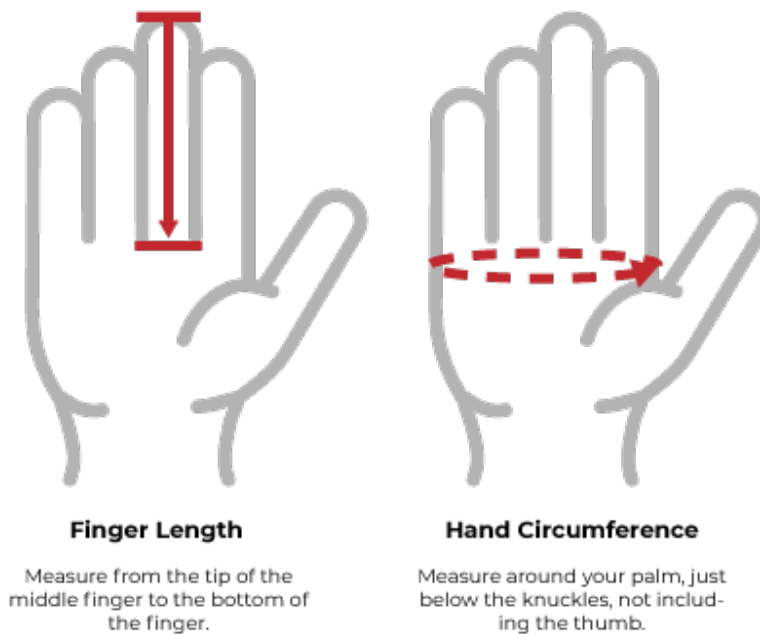
Transceiver

The transceivers' main purpose is to send and receive data from the sensors. The connection method is a universal Type-C interface. Hi5 V2 kits are equipped with a Type-C to USB adapter cable for port compatibility.

Charging Dock

The charging dock can provide power to charge all sensors at once. Each case has a USB TYPE-C interface to connect to a power source, using the standard Type-C cable provided in each kit sensors.

Base Glove

The base gloves are made of a flexible and breathable material that can fit different hand sizes and shapes. The glove is completely free of built-in cables and can be easily separated from the sensor, which perfectly solves the pain points of traditional VR glove size selection and cleaning replacement.


Finger Length

Measure from the tip of the middle finger to the bottom of the finger.

Hand Circumference

Measure around your palm, just below the knuckles, not including the thumb.

Size Recommendations:

Size	XS	S	M	L
Palm Circumference (cm)	15-18	16-19	19-22	22-25
Middle Finger length (cm)	6-7	6.5-7.5	7.5-8.5	8.5-9.5

Glove Setup

Download and installation.

Download the package you want to use from the official Hi5 VR GLOVE website. The SteamVR package contains the content shown in the figure below after extraction and runs the .exe file shown in the figure below to use.

SteamVR\Unity\Foundation SDK\Hi5 2.0_SteamVRHeadset_FSDK_Unity_v1.1.1.13\Hi5 2.0_SteamVRHeadset_FSDK_Unity_v1.1.0.23\Hi5_2_Vive_V1.1.0.23
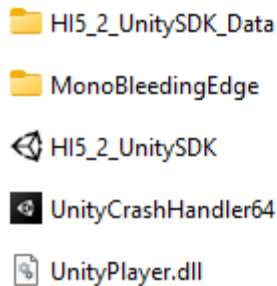
If you are an Android all-in-one HMD user, you need to import the corresponding apk file into the all-in-one (connect unit the computer in a boot state to recognize the drive, and copy the file directly), and then install the program, the same as the Android mobile phone installation local program operation.

Sensor Operation

a. Power on the sensor

- Method 1: (Recommended) When the sensor is in the charging case and is in the power-on state, unplug the charging cable directly to turn on all of them automatically.

- Method 2: Click the gray round button on each sensor, press and hold for 2 seconds, and let go after the LED indicator lights up.

After bootup, the sensor's LED will begin in a slow flashing state, flashing about .2hz. Hi5 V2 sensors support up to 5 different channel frequencies, indicated by different colors. Determine whether the color of all LED indicators of the sensor are consistent, if it is inconsistent, double-click the button to adjust the color of the sensor indicator until the LED color of all sensors are the same. The sensors and transceiver need to have the same LED indicator color in order to communicate.

Press and Hold for 2 seconds

b. Power off the sensor.

- Method 1: (Recommended) Take out the sensor, put it back into the charging case, plug in the charging cable to charge, and automatically shut down the system after charging is completed (unplug the charging cable in this state to automatically turn on).

- Method 2: Long press the gray button for about three seconds, and then turn off the sensor until the red light is on.

- Method 3: Remove the data transceiver from the device and disconnect the data transceiver from the sensor. After 30 minutes of disconnection, the sensor automatically shuts down.

Sensor Installation

After turning the sensor on, follow the text label on the top of the sensor and insert the sensor into the corresponding finger pocket of the base glove.

Place gloves in a place as far away as possible from "iron" and interference with magnetic fields and plug our transceiver into the VR device. (Windows users plug in the computer, all-in-one users can directly plug in the headset) to see if the color of the signal transceiver's indicator is consistent with the color of the sensor indicator.

If the color of the LED indicator is different, double-click the transceiver gray button to switch colors until the device matches the sensor's LED color. Each color corresponds to a Wi-Fi frequency band, there are a total of 5. When the LED indicator color matches with the sensors, leave the device for a few seconds, all sensors LED indicators will change from a slow flashing state to a fast flashing or solid state to a successful pairing.

Put gloves on after sensors have been placed in their sockets. and the handle of the locator (the all-in-one machine is the handle) for details, see "Standalone HMD strap setup"

HTC Tracker Wearable example

Schematic diagram of wearable VR all-in-one handle

Begin calibration procedure.

Begin with wearing your headset, enter the application interface, and open the Hi5 calibration program. If you are using PC version, execute your application exe file

After entering the program, observe the connection status of the sensor on the right panel. When you first enter, it is generally gray, indicating that the sensors are connecting. Wait for two or three seconds until all sensors light up, and there is no red mark, indicating that the sensor connection is good,

At this state the calibration procedure can commence.
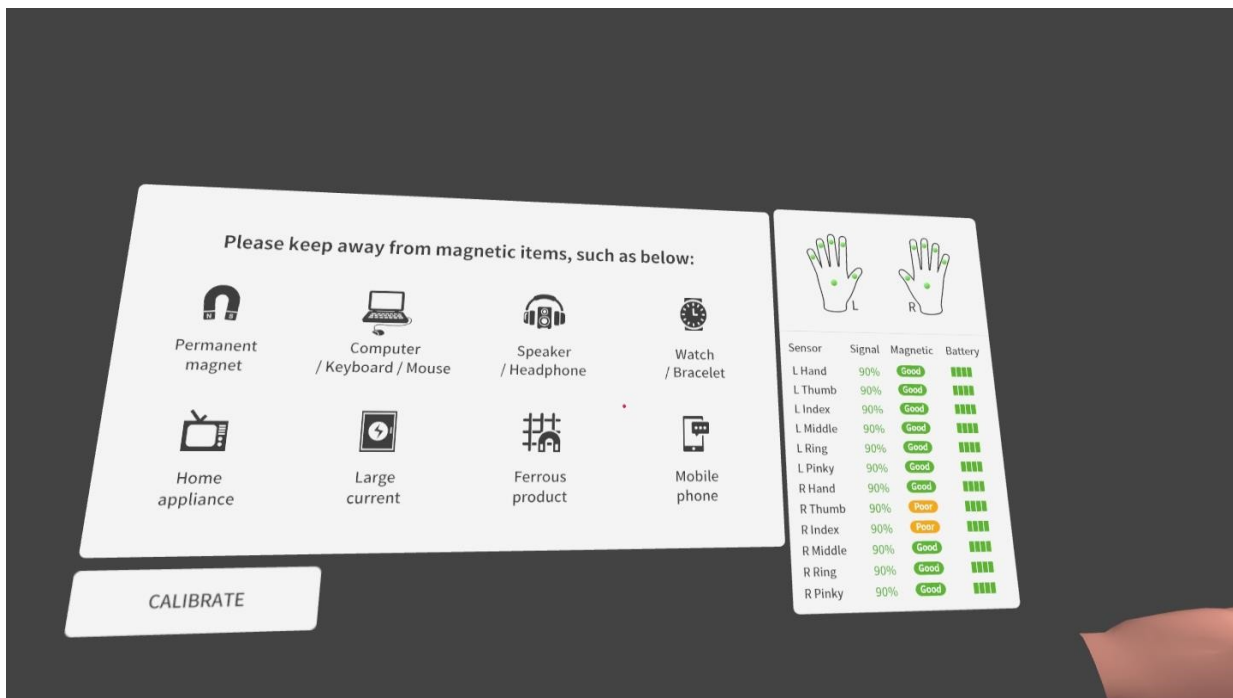
Calibration

Calibration has a total of three actions, the more precise the action, the higher the calibration accuracy, each action needs to pay attention to the details as follows:

- The first movement: pay attention to the combination of palms in front of the body, ensure that the four fingers are together, the angle between the thumb and the four fingers is about 45 degrees, the whole palm is centered, so that the left and right are symmetrical, and the forearm is parallel to the ground.

- The second movement: Based on the first movement, raise hands up, palms together, so that the angle between the forearm and the horizontal is about 60-70 degrees.

- The third movement: pinch the thumb and index finger, with your hands facing each other in front of your chest.

After the calibration is completed, review the posture of the fingers and hand, and ensure they match correctly to your movements. If the calibration posture is not good, please retry the procedure again. The sensors utilize magnetometers, it is recommended to operate the sensors away from magnetic interference as best as possible.

Standalone HMD strap setup

The figure below uses the handle of the Pico Neo 3 as an example:

1. Clean and wipe the surface of the handle to ensure that the surface is clean and clean. Then glue the Velcro hook surface on both sides of the handle, (it is best to press firmly and stand for a period before use) The position is shown in the following figure:

2. Put the handle with the button side up, put it on the handle strap, at this time, because of the Velcro, the handle part will automatically stick and play a fixed role. As shown in the image:

3. Use the buckle at the front of the handle to fix the front end of the handle (try to fix it as tight as possible here so that it is not easy to flip and slide), as shown in the figure:

4. Depending on the left and right of the handle, place it directly above the corresponding arm, and then secure it at the wrist position using the narrow strap at the front of the handle. (When wearing alone, you can put your arms on your chest and use the hand to clamp the wide long strap between your chest to effectively prevent the handle from rolling and sliding during wearing) as shown in the figure:

5. After fixing the front strap, pass the strap through the buckle at the wide strap at the fixed forearm, then tighten it in reverse, make a circle and pass above the handle, and finally use Velcro to glue it.

6. 1.The wearing effect is as follows, try to ensure that the handle is directly above the arm, and the left and right are symmetrical, and the height is basically the same.

7. 1.After wearing, try to make the strap symmetrical left and right, and the height is basically flat, as follows:

Tips on using Velcro:
   a. Press hard after attaching, you can increase the fit between the Velcro and the handle, it is best to stand for a period, use immediately after attaching, the Velcro is easy to fall off with the handle.
   b. If you want to use the handle alone when you do not use the strap, there is a Velcro on the side of the button to affect the grip feel, or you can glue the Velcro horizontally to the bottom. But when the lateral adhesive is unfastened, the Velcro is relatively easy to fall off.
   c. When untying the strap, at the contact point between the hook surface and the wool surface of the strap, use the strength to quickly untie the Velcro, and the Velcro is less likely to fall off. The slower it is untied, the easier it is to bring the Velcro down.

F.A.Q

1. After the calibration is completed, what is the reason for the deviation of the palm?
   Answer: It may be that the position of the handle fixed to the arm is asymmetrical, see Chapter 4, point 7 for details.
2. After the calibration is completed, the finger cannot be bent, or when the finger is bent and clenched, the model is in the opposite direction to the actual direction, what is the reason?
   Answer: Please check whether the sensors are placed in the corresponding finger pockets, generally this situation occurs because some sensors are misplaced
3. After the calibration is completed, the hand shape is normal when the four fingers are straight forward, and after the angle is flipped, sometimes some fingers will bend, why?
   Answer: This is often interference that occurs when the magnetic value in the environment is not good, you can put your fingers together, palms facing each other, hands, and forearms upright, stand for a short time, and the algorithm will auto correct for the interference.