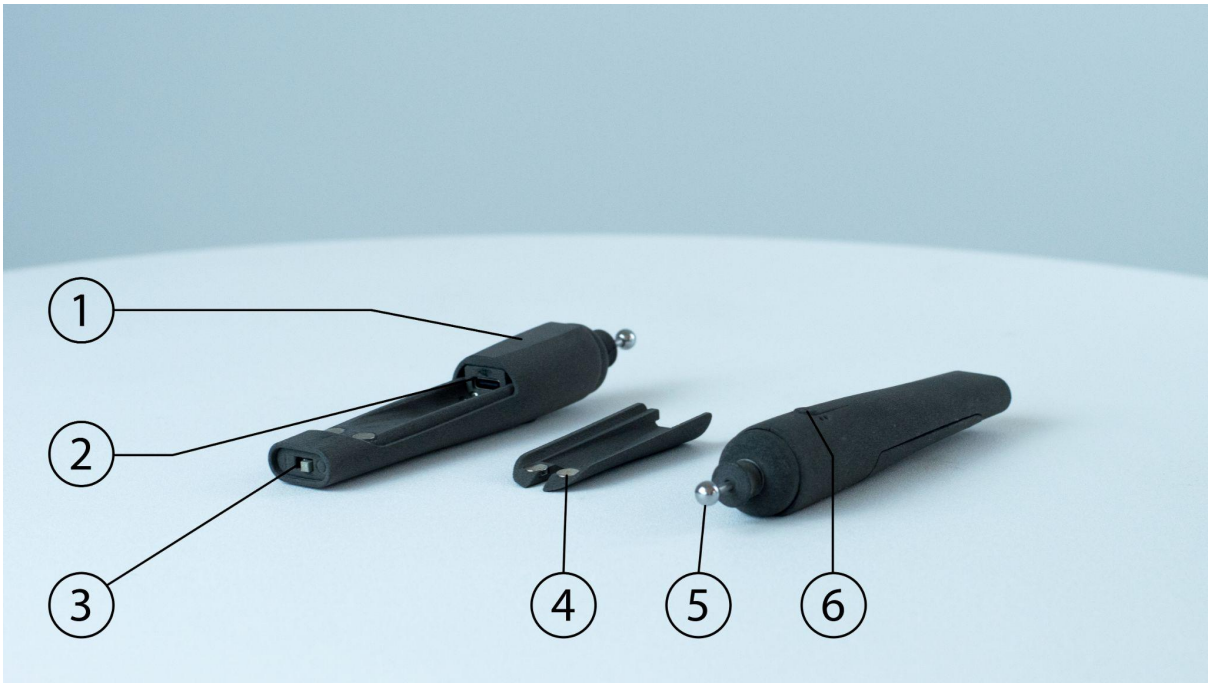
Inverse 3 Tracked Handles

The Inverse3's wireless-tracked handles provide a 3-axis orientation tracking, generic button input, and an attachment sensor which can detect whether or not a handle is attached to an Inverse3 controller. This article provides an overview of the handle hardware as well as high-level integration guidelines.

Overview

On the outside, the handle has one input button (6), a power slider (3), Inverse3 connector (5), power status LEDs, and a magnetic cover (4) concealing a USB-C charging port (2) which can be connected during regular use. The flat underside of the handle (1) is designed to be placed against a flat work surface during calibration of the internal orientation sensor. The sensor requires recalibration after each power cycle, or after extended use.



The handle communicates with your computer using Bluetooth. The battery lasts approximately 90 minutes, and can be fully re-charged in under 2 hours. The green and blue LEDs indicate the power and battery status of the handle.

Green	on	power on
	off	power off
Blue	on	battery charging
	off	battery fully charged
	flashing	battery disconnected

> The handle's firmware and API are designed to support integration of additional input and sensors. Check back soon for more information.

Connectivity

The connecting/pairing of a handle to your computer is done via your system's built-in Bluetooth settings. Use the power slider to power on the handle and find "Haply_Handle_xxxx" in the list of available devices, where **xxxx** is any hexadecimal identifier.

For additional instructions on adding a Bluetooth device, please consult the relevant guide for your specific operating system.

Windows 11, 10, 8.1, 7

MacOS

> The handle can only connect to one device at a time. To connect to another computer, you must remove the handle from the list of Bluetooth devices on your system.

First use

The easiest way to get started using your wireless handle is through the Device Dashboard, which provides a graphical interface for visualising and calibrating connected handles. Once the Device Dashboard has launched, your handle should appear in the list of available devices in the top-left corner of the user interface. For full position and orientation tracking, plug-in an Inverse3 and select it from the Dashboard's device list. Once you've attached a handle to the Inverse3's quick attach mechanism, you will see it moving along with the Inverse3 inside of the dashboard.

Integration

Currently, HardwareAPI includes support for handle discovery and sending/receiving handle data. For language-specific API documentation please consult one of the following support directories:

- HardwareAPI C# - Handle Support
- HardwareAPI C++ - Handle Support
- HardwareAPI Unity Package - Handle Support

> To build custom support for a handle, follow the HardwareAPI serial protocol outline

Reading orientation data

Correctly calibrating and consuming orientation data will depend on the reference frame and coordinate system of your engine/SDK, and as such is not directly supported in our API. For examples on how to calibrate and use orientation data, see this. We recommend placing the handle in a known orientation, for example parallel or perpendicular to another object in your workspace.

Subsequent releases of our APIs will feature built-in calibration facilities.

Cointegration with the Inverse3

Combining the tracked handle with an Inverse3 is the best way to get the most out of each product. The handle's onboard attachment sensor detects whether the handle tip is attached to an Inverse3, allowing you to make import UX choices based on whether a handle is attached or not. For example, you might put the Inverse3 into a holding pattern using its position control feature whenever a handle is detached, freeing the user to focus all their attention on selecting and attaching the next tool they need.

Technical Details

Charging connector	USB-C
Battery life	90 min
Charging time	120 min

Communication interface	Bluetooth 2
Communication rate	120 hz
Orientation tracking	Full / 3-axis(pitch, yaw, roll)
Inverse3 attachment sensor	Yes
Programmable buttons	1