iCode Arcade Trackball Ultimate and Ultimate W

A precision arcade trackball for PC, Raspberry Pi, and Android. Mouse and gamepad modes (or both at once), on-the-fly sensitivity and acceleration, five USB emulation modes, 10 on-device presets plus an unlimited Cloud Vault, and lag-free response.

The **Trackball Ultimate W** adds **Bluetooth** and a built-in rechargeable battery, so you can also play wirelessly. Everything in this manual applies to both models; sections marked **W** apply to the wireless model only.

No drivers needed. Just plug in and play.

Visit iCodeHub at **https://hub.icode.com** to name your presets, map buttons, back up to the Cloud Vault, and update firmware.

For help and assistance: https://www.icode.com/support

Getting Started



iCode Arcade Trackball Ultimate

Step 1. Connect the Trackball to your computer with the USB cable. Your system recognizes it as a composite device — a gamepad and a mouse. No drivers are needed. (**W:** turn the power switch on first.)

Step 2. The display lights up and shows the play screen (see *Understanding the Display*).

Step 3. Start playing! Roll the ball and press the buttons — the display shows them live.

W — playing wirelessly: unplug the USB cable and pair the Trackball with your computer or phone over Bluetooth (see *Wireless (W)*).

To test it as a game controller on Windows:

1. Open the Start Menu and search for **"Set up USB game controllers"**.

2. Select the controller and click **Properties**.

3. Make sure the Trackball is in Gamepad mode (see *Mouse vs. Gamepad*).

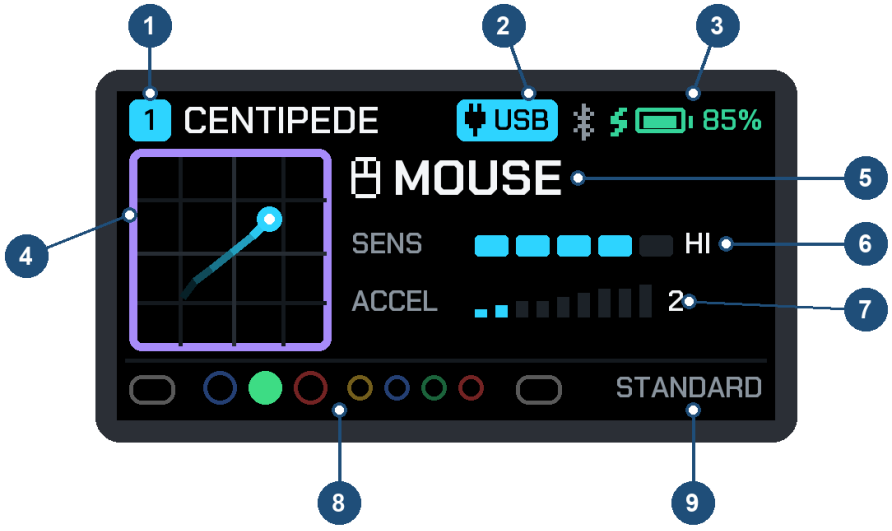
4. Roll the ball and press the buttons — the axis display and button indicators move in real time.

Know Your Trackball

- **Trackball** — the large ball on the right.
- **Three large buttons** — **Blue** (left), **Green** (middle), and **Red** (right), each with its own light.
- **Four small buttons** — **Yellow**, **Blue**, **Green**, and **Red**, next to the display.
- **Two side buttons** — one on each side.
- **Black button** — the menu, shortcuts, and power.
- **Display** — your setup and live feedback.
- **W:** a **power switch** and a built-in battery.

Understanding the Display

The display shows your current setup and live feedback while you play.



The play screen and its parts

- **1 Preset** — the active preset slot (0–9) and its name. Name your presets in iCodeHub.
- **2 Connection** — the filled label shows the connection carrying your input: **USB**, or (**W**) **BLE** for Bluetooth. **W:** a small icon beside it shows the other connection (see *Status Indicators*).
- **3 Battery (W)** — the battery level. Green with a lightning bolt while charging; **FULL** when charging is complete.

- **4 Trackball pad** — the dot follows the ball as you roll it, with a short trail. The border is **purple** while connected and **flashes red** when no computer is receiving input (for example, on a charger or with the computer asleep).
- **5 Output** — **MOUSE**, **GAMEPAD**, or **MOUSE+PAD**. In gamepad modes a tag shows what the ball controls (LEFT, RIGHT, TRIG, DPAD).
- **6 Sensitivity** — five steps: V.LO, LO, MED, HI, V.HI.
- **7 Acceleration** — OFF, 1 to 9 (taller bars = more), or **SNAP** (see *Acceleration*).
- **8 Buttons** — light up as you press them: side button, the large Blue, Green, and Red buttons, the small Yellow, Blue, Green, and Red buttons, side button.
- **9 USB emulation mode** — how the Trackball identifies itself to the computer (see *USB Emulation Mode*). Shown while USB is carrying your input.

When you change a setting with a shortcut (see *Real-time Shortcut Actions*), the part of the display it affects **blinks yellow for two seconds**, so you can see the change take effect. Settings without their own spot on the screen — rapid fire and the large-button swap — show a short message along the bottom instead.

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iCodeHub

Browser-based device manager — no install needed. Works in **Chrome or Edge**. Free; no account needed to start.

1. Connect the Trackball via USB.

2. Open **https://hub.icode.com** in Chrome or Edge.

3. Click **Connect** and select your Trackball.

With iCodeHub you can:

- **Register your Trackball** (free) to unlock all 10 presets
- Manage your presets — sensitivity, button mappings, axis settings, and more
- Name your presets and your device — names show on the Trackball's display
- Back up to the **Cloud Vault** (100+ presets) and restore to any Trackball
- Update firmware with one click
- Switch USB emulation modes
- Use **smart button validation** — iCodeHub keeps mappings valid for each emulation mode
- Sync mini-game high scores to the leaderboard
- **Transfer your device** to a new owner with their presets intact

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USB Emulation Mode

The Trackball can identify itself as five different USB device types. This changes what your computer or console recognizes it as, and which emulators detect it automatically.

Mode	Best For
Standard	Windows, Linux, emulators
Classic	Retro gaming platforms
Nintendo	Nintendo Switch
Legacy	Older basic HID systems
iOS	iPhone and iPad

The current mode is shown at the bottom right of the display (**9**) and on the **System Info** screen. Change it in iCodeHub or in the on-device Settings Menu.

> **Note:** USB emulation mode controls the device's *identity* over USB. It is separate from **Mouse vs. Gamepad**, which controls how the Trackball *behaves* once recognized. Over Bluetooth (**W**) the Trackball is always a standard Bluetooth mouse and gamepad.

Mouse vs. Gamepad

The Trackball can act as a mouse, a gamepad, or both at once. Many arcade games use a mouse for trackball control and others use an analog gamepad stick — check your emulator and game settings.

Change it two ways:

- Press the **Black** button to open the Settings Menu and change **Mode**.
- Hold the small **Blue** button and tap the **Black** button to cycle Mouse → Gamepad → Mouse+Pad during play.

Gamepad Axis sets what the ball controls in gamepad mode: **Left Stick, Right Stick, D-PAD, Triggers,** or **None**. With None, the ball is off but the buttons still work as gamepad buttons.

Gamepad Auto-Recenter

Some games expect a stick that returns to center. Auto-Recenter returns the gamepad stick to center after a short idle time, so the ball behaves like a self-centering joystick.

- Idle time from 5 ms to 1 second
- Saved **per preset**
- Set in iCodeHub or the Settings Menu (**GP Recenter**)

Axis Control

Axis in the Settings Menu is **Normal** or **Flipped**. Flipped reverses both directions of the ball — for a game that moves the wrong way, or a Trackball turned around. Saved **per preset**.

Axis override: any button can be made an axis shift key (see *Buttons on the Device*) — hold it and the ball's up/down and left/right swap until you let go.

Sensitivity

Sensitivity sets how far the cursor or game object moves per turn of the ball. A higher setting crosses the screen with less rolling, which means less fatigue and faster reactions. Saved **per preset**.

Acceleration

Acceleration adds speed based on how *fast* you roll:

- **Slow roll:** precise, for fine aiming.
- **Fast roll:** a speed boost to cross the screen quickly.

We suggest **1 or 2** for most games. For older arcade titles you may prefer **OFF (0)** for exact 1:1 movement. Adjusting acceleration is usually the best way to fine-tune control, rather than changing sensitivity. Saved **per preset**.

SNAP (Gamepad and Mouse+Pad modes): in a gamepad mode, the top acceleration step shows as **SNAP**. Each gamepad axis then works like a digital stick with three positions — full left, center, and full right. Roll a short way (15% of the range) to snap to an edge, and the same distance back to return to center; rolling further toward an edge you are already at changes nothing, so the way back is always the same short distance. Turn on **GP Recenter** to have it return to center by itself when you stop. SNAP is handy for games that only need left/center/right (like a D-pad), and for emulators such as Stella that ignore small movements when you map controls. Mouse movement is not affected — in Mouse mode the top step stays **9**.

Buttons on the Device

The Trackball has 9 programmable buttons — 3 large, 4 small, and 1 on each side — plus the **Black** button for the menu, shortcuts, and power. Customize them in the **Button Settings** menu or, more easily, on the **Button Mapping** tab in iCodeHub. Button mappings are saved **per preset**.

- **Button mapping:** any of 32 gamepad buttons or 5 mouse buttons (left, right, middle, back, forward).
- **Axis override:** make a button the axis shift key (see *Axis Control*).
- **Button lights:** each large button's light can be Always On, Always Off, or On When Pressed.
- **RGB Lights:** the lights under the ball can be Off, Rainbow, Red, Green, or Blue — or **Press**, where the large buttons mix the color (Blue, Green, Red), and **Press+Rainbow**, which shows a rainbow when no large button is held.

> **Smart validation:** when you change USB emulation modes, iCodeHub checks that your button mappings are still valid for the new mode and warns you about conflicts.

Real-time Shortcut Actions

Change settings during play without opening the menu: **hold the button below, then tap the Black button.** Each tap makes one change, and the affected part of the display blinks yellow for two seconds.

To change...	Hold...	...and tap Black
Mouse / Gamepad / Both	Small **Blue** button	Cycles the mode
Sensitivity	Large **Red** button	Next step up
Acceleration	Small **Red** button	Next step up
Rapid fire on the side button	Left side button	Toggles on/off
Display on/off	Small **Green** button	Toggles the display
Preset	Right side button	Next preset
Swap the large Green and Red	Large **Green** button	Swaps them

Using a shortcut never opens the Settings Menu — tap **Black** on its own to open it.

Rapid Fire

Any button can be set to **rapid fire** (auto-click) while it is held down. The firing speed is adjustable. Set it up in iCodeHub or in the on-device Button Settings menu.

Preset Memory Slots

The Trackball stores **10 presets** on the device (slots 0–9). iCodeHub's **Cloud Vault** holds **100+ more**, backed up to your account and restorable to any Trackball.

Register your Trackball in iCodeHub — it's free — to unlock all 10 presets. Until then the Trackball uses preset 0, and changing presets shows a reminder.

Each preset saves:

- Mouse / Gamepad / Both, and what the ball controls in gamepad mode
- USB emulation mode
- Sensitivity, acceleration, and axis settings
- Button mappings and rapid fire
- Gamepad Auto-Recenter timing

Naming presets: give each preset a meaningful name in iCodeHub — it shows next to the preset number on the display (**1**). Example names: *MAME Trackball Games, Steam Gamepad Games, Nintendo Switch Games.*

Device transfers: selling your Trackball? Transfer it to the new owner in iCodeHub — your Cloud Vault presets stay with your account.

Display Settings

The display has two settings, chosen in the Settings Menu (**Display**) or with the **Green** shortcut:

- **On** — the play screen described in *Understanding the Display*.

- **Off** — the screen shows **DISPLAY OFF** in dim gray, with a reminder below it that **Black + Green** turns it back on, and is not redrawn while you play.

Audio & Sound Feedback

A built-in speaker gives audio feedback for menus, shortcuts, and the mini-games.

- **Volume:** 0 (mute) to 10, in the Settings Menu.
- **Menu and shortcut sounds:** a beep confirms each change.
- **Game audio:** sound effects in the mini-games.

Bonus: Built-in Mini-Games

Two mini-games are built into the Trackball — **Iron Dome** and **Brick Bash**. Open **Mini-Games** in the Settings Menu. High scores are saved on the device and sync to the iCodeHub leaderboard. **Reset to Defaults** clears the local high scores; the iCodeHub leaderboard keeps them.

Power Off and Wake

Hold the Black button for 5 seconds to turn the Trackball off. The display shows **Shutting Down...**, the button lights sweep, and the display goes dark. Let go of the buttons once it does.

Press any button to wake it. The Trackball restarts — it takes a few seconds — and on the **W** a paired Bluetooth host reconnects by itself.

If the Trackball ever stops responding, **hold Black for 8 seconds** to force a restart.

> On the **W**, powering off this way still uses a little battery. For storage, turn the **power switch** off (see *Battery and Charging*).

Wireless (W)

The Trackball Ultimate W connects to computers, phones, and tablets over **Bluetooth** as a standard Bluetooth mouse and gamepad. The ball and every button work wirelessly just as they do over USB.

Pairing

Wireless is **On** out of the box. Unplug the USB cable — while the Trackball isn't connected, the **Bluetooth icon** at the top right of the display **blinks blue**, ready to pair. On your computer or phone, open the Bluetooth settings, choose to add a device, and select **iCode Trackball Ultimate**. Once paired, it reconnects on its own whenever both are on.

Choosing USB or Bluetooth

The Trackball picks the connection for you:

- **At power-on:** if it is plugged into a computer, it uses **USB**; otherwise it uses **Bluetooth**.
- **Unplugging USB** switches to Bluetooth straight away.

• **Plugging into a computer** switches to USB when **Priority** is **USB First** (the default). With **Wireless First**, it stays on Bluetooth — handy for charging from your computer while you keep playing wirelessly.

Only one connection carries your input at a time; the other waits on standby.

Wireless Settings

Press the **Black** button and open **Wireless**:

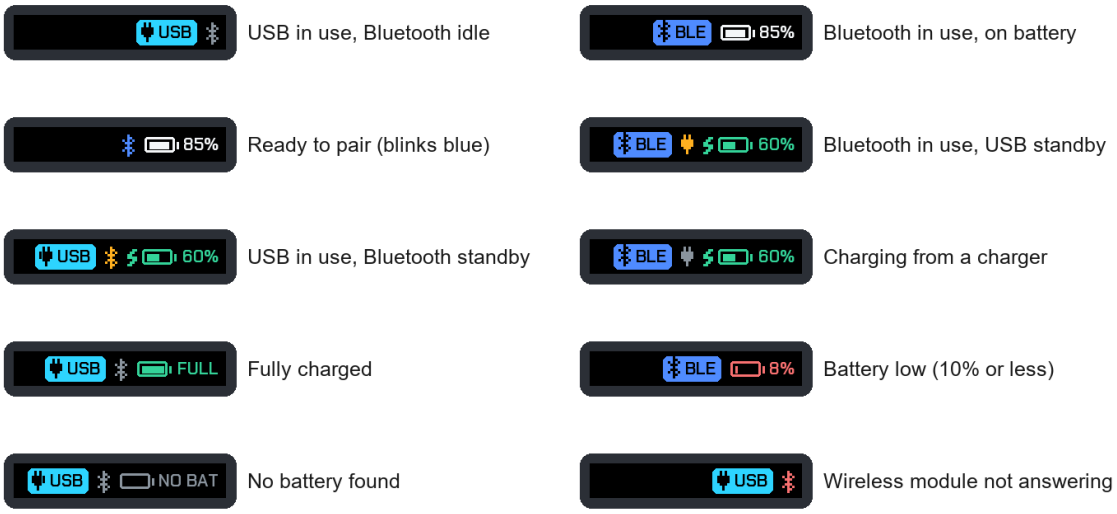
Wireless — **On** or **Off**. Off turns Bluetooth off and keeps everything on USB.

Priority — **USB First** (the default) or **Wireless First**; see above. With USB First, the Trackball stops advertising while it is plugged into a computer — unplug it to pair.

Sleep on BAT / **Sleep on USB** — how long the Trackball waits with no input before it powers off, on battery and while plugged into USB (a computer or a charger): **1**, **2**, **3**, **5**, **10**, or **15** minutes, or **Never**. The defaults are **3 minutes** on battery and **Never** on USB. See *Sleep* below.

Status Indicators

The top right of the display shows the connections and the battery. The filled label is the connection carrying your input; an icon beside it shows the other one.



Status indicators on the W

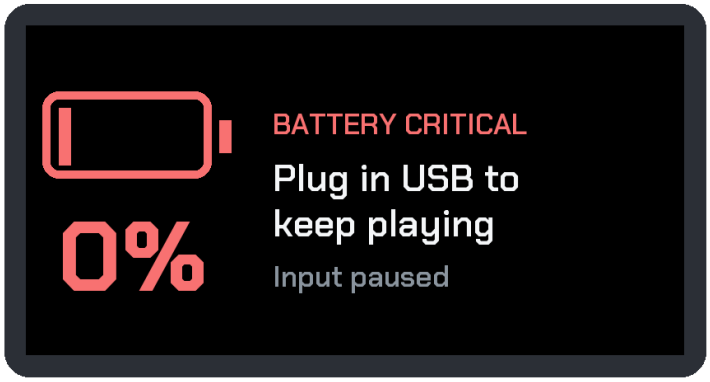
• **Gray** icon — connection not in use (Bluetooth idle, or USB power only).
• **Yellow** icon — connected and on standby.
• **Blinking blue** Bluetooth icon — ready to pair, waiting for a connection.
• **Blinking red** Bluetooth icon — the wireless module isn't answering. Turn the Trackball off and on again.

Battery and Charging

The W's switch is its **power switch**: **off** turns the Trackball off — even with USB plugged in — and disconnects the battery so nothing drains it in storage. Turn it **on** to play on battery or over USB, and to charge: the battery charges whenever the switch is on and the Trackball is plugged into USB (a computer or any USB charger). It keeps charging while the Trackball is powered off with the Black button.

While charging, the battery level shows in **green** with a lightning bolt and counts up. It shows **FULL** once charging is complete. On battery the level shows in white, and in **red** at 10% or less.

When the battery runs out, the Trackball shows **BATTERY CRITICAL**, beeps, and stops sending input until you plug it into USB:



Battery critical screen

Sleep

To save the battery, the Trackball powers off by itself after a few minutes without input — set by **Sleep on BAT** / **Sleep on USB**. Rolling the ball or pressing any button counts as input. Press any button to wake it; it restarts and Bluetooth reconnects by itself.

Good to Know

- Over Bluetooth, the Trackball is a standard mouse and gamepad. **USB Emulation** modes apply to USB only.
- Consoles such as the Nintendo Switch use **USB**.
- If your computer is paired over Bluetooth **and** plugged into USB, it lists the Trackball twice — once for USB and once for Bluetooth. That's normal: only one connection carries your input at a time (see *Choosing USB or Bluetooth*). Games may need the controller set up once for each.

Firmware Updates

Firmware updates are done in **iCodeHub**:

1. Connect the Trackball to your computer via USB.

2. Open **https://hub.icode.com** in Chrome or Edge.

3. Click **Connect** and follow the update instructions.

> **Back up first:** save your presets to the Cloud Vault before updating. Settings and presets may need to be restored from your Vault afterwards.

W: the wireless module is updated automatically — after a firmware update, the Trackball may show **Updating Wireless...** for a moment the first time it starts.

Recovery (Pinhole)

Use this only if the Trackball does not respond or iCodeHub cannot find it.

1. Unplug the Trackball.

2. Find the small pinhole on the top of the unit.

3. Insert a pin and press and hold the internal button (you will feel a click).

4. While holding it, plug the USB cable back in.

5. The screen stays blank and the Trackball appears as a USB drive.

6. Open iCodeHub and use the device recovery option to install firmware.

System Information

Settings Menu > System Info shows:

- Product name
- Firmware version
- **W:** wireless module (BLE bridge) version
- USB emulation mode
- Serial number — the same number iCodeHub shows, used for registration and support

Press any button to return.

Troubleshooting

The display is blank. It may be set to Off — hold the small **Green** button and tap **Black**. If the screen is completely dark, the Trackball may be powered off: press any button to wake it.

Your computer doesn't recognize the Trackball. Try a different USB cable or port. Then try another **USB Emulation** mode in the Settings Menu — Standard works for most platforms.

The cursor moves the wrong way. Set **Axis** to **Flipped** (or back to **Normal**) in the Settings Menu, or invert the axis in your game.

The pad border flashes red. No computer is receiving input — the Trackball is on a charger only, the computer is asleep, or (**W**) Bluetooth isn't connected.

Presets won't change. Register your Trackball in iCodeHub (free) to unlock all 10 presets.

W: the Trackball doesn't show up in Bluetooth. Check that **Wireless** is On, the power switch is on, and the battery is charged or USB is plugged in. Unplug USB: with Priority set to USB First the Trackball doesn't advertise while plugged into a computer. The Bluetooth icon blinks blue while it is ready to pair.

W: input goes over USB instead of Bluetooth. With Priority set to USB First, USB takes over whenever the Trackball is plugged into a computer. Set Priority to **Wireless First** to stay on Bluetooth while charging from a computer.

W: the battery doesn't charge. The power switch must be on while the Trackball is plugged into USB. If the display shows **NO BAT**, the battery isn't connected — contact support.

W: the screen went dark on its own. It powered off to save the battery — press any button to wake it. Change the time (or choose Never) with **Sleep on BAT** / **Sleep on USB**.

Help and Resources

Scan the code for your model's help page — setup guides, videos, and the latest manual.

Trackball: icode.com/help/trackball

Trackball W: icode.com/help/trackball-w

- **Videos** — youtube.com/@i-code
- **Discord** — chat with other owners: discord.gg/SVeHruD2d3
- **Community forums** — questions, troubleshooting, and ideas: icode.com/community
- **Facebook** — news and updates: facebook.com/icodeusa

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