# iCode Duo Ultimate SE H1-COL

A compact adapter that brings your classic Coleco ColecoVision controllers to life on modern devices — from PCs and Macs to Nintendo Switch, MiSTer FPGA, and beyond. Dual DB9 ports, two status LEDs, and two configurable buttons in a streamlined design with no screen — all advanced settings are configured through the iCodeHub web app.

No drivers needed. Just plug in and play.

Visit iCodeHub at **https://hub.icode.com** to unlock the full potential of your device — fine-tune every setting, customize your buttons, map the keypad, and get the most out of your classic controllers!

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

---

## Getting Started

**Step 1.** Plug the Duo Ultimate SE into any USB port using the USB-C cable. You'll see both LEDs blink green three times, then settle into solid colors showing your current mode. (Don't forget the power switch on the device — make sure it's on.)

**Step 2.** Connect your ColecoVision controller to either DB9 port. Port 1 is on the left, Port 2 on the right. Both ports work simultaneously, so two players can connect at once.

**Step 3.** Start playing! The default setting is Hand Controller mode with Standard USB emulation. Your joystick directions map to the left analog stick, and the two fire buttons map to gamepad buttons. Each of the 12 keypad keys sends its own gamepad button — 1–9 are buttons 0–8, * is 9, 0 is 10, and # is 11 — and can be fully customized in iCodeHub.

**Step 4.** Visit **iCodeHub** in your browser to unlock the full potential of your adapter! Map every keypad key, configure button actions, tune the Super Action Controller's speed roller, enable mouse emulation, and more — no software to install.

---

## Supported Controllers

The Duo Ultimate SE H1-COL supports both ColecoVision controller types. Each one works on both DB9 ports simultaneously.

### Hand Controller

The standard ColecoVision controller, and the default. It features a digital joystick, two fire buttons, and the full 12-key keypad. Every keypad key can be individually mapped through iCodeHub — essential for the many ColecoVision games that rely on the keypad for play selection, weapon choice, difficulty, and game options.

### Super Action Controller

The premium ColecoVision controller. It adds two extra action buttons (for four fire buttons total — Fire A, Fire B, Purple, and Blue) plus the analog **Speed Roller**, on top of the digital joystick and 12-key keypad. The speed roller gives you smooth spinner-style control for games like Front Line and Spy Hunter, with adjustable orientation, behavior, resolution, acceleration, and range — all configurable in iCodeHub.

---

## Changing Your Controller Type

If you're switching between the Hand Controller and the Super Action Controller, you'll need to change the active controller type. Press and hold **both BLACK and WHITE** buttons together for about 2 seconds while the adapter is running. The controller type toggles between the two:

Hand Controller ↔ Super Action Controller

You'll know it worked by watching **LED 2 (the right LED)** — it changes color to reflect the new controller type:

| LED 2 Color | Controller Type |
|---|---|
| Green | Hand Controller |
| Blue | Super Action Controller |

When the color changes, the switch is complete and you can release the buttons. The change applies to both ports at once and saves automatically, so your adapter will remember your choice the next time you plug it in.

You can also change the controller type through the iCodeHub web app.

---

## USB Emulation Modes

The USB Emulation Mode determines how your adapter identifies itself to the host device. Most of the time, the default Standard mode works fine — but if your platform isn't recognizing the adapter, you'll want to switch to the mode designed for it.

**Standard** — Works with Windows, Linux, and most emulators. This is the default.

**Classic** — Designed for retro gaming platforms and classic-style emulator setups.

**Nintendo** — Use this for Nintendo Switch and RetroArch with Nintendo button mapping. In this mode, the joystick function automatically switches from Left Analog to D-Pad, since Nintendo devices expect D-Pad input. When you switch away from Nintendo mode, it reverts back to Left Analog.

**Legacy** — For older systems and emulators that need basic USB HID descriptors.

**iOS** — For iPhone, iPad, and Apple TV.

### How to Change It

Hold the **BLACK** button while plugging in the USB cable. Both LEDs will blink blue three times to confirm, and the mode advances to the next in sequence:

Standard → Classic → Nintendo → Legacy → iOS → Standard

The setting saves automatically and the device reboots into the new mode after a 2-second delay. Keep holding BLACK and re-plugging until you see the right color on **LED 1 (the left LED)**:

| LED 1 Color | Emulation Mode |
|---|---|
| Yellow | Standard |
| Blue | Classic |
| Red | Nintendo |
| Green | Legacy |
| White | iOS |

You can also change the emulation mode through the iCodeHub web app.

---

# Unlock Full Potential — iCodeHub Web App

Your Duo Ultimate SE is ready to play right out of the box, but the real magic happens when you connect it to the **iCodeHub** web app. This is where you map every keypad key, fine-tune how the Super Action Controller's speed roller responds, remap your buttons to do exactly what you want, set up mouse emulation for the roller, and so much more. If you want to get the absolute best experience from your adapter, iCodeHub is the place to do it.

The best part? There's nothing to install. iCodeHub runs right in your browser. Just open it in **Chrome**, **Edge**, or **Opera**, click Connect Device, and select the Duo Ultimate SE from the browser's device picker. The app loads your device's current configuration and you're ready to customize.

The web app has three configuration tabs:

## Ports Configuration

This is where you set up your controllers. For each port you can select your controller type (Hand Controller or Super Action Controller) and choose the Function mapping — how directional input maps to USB output (Left Analog, D-Pad, Right Analog, Trigger, or Buttons Only).

This is also where you map the **keypad** — each of the keypad keys can be individually assigned to a gamepad button, a directional action, or a keyboard key, so games that depend on the keypad work exactly as intended. Out of the box, every key is its own gamepad button (1–9 = buttons 0–8, * = 9, 0 = 10, # = 11).

If you're using the Super Action Controller, you'll also find the **Speed Roller** settings here:

| Setting | Options |
|---|---|
| Function | Left Analog, D-Pad, Right Analog, Trigger, Buttons Only |
| Orientation | Horizontal, Vertical, Flip Horizontal, Flip Vertical |
| Behavior | Linear, Circular |
| Resolution | 1–10 (step size per movement unit) |

| Setting | Options |
| --- | --- |
| Acceleration | Off, Very Low, Low, Medium, High, Very High |
| Range | Full, Half |

Finally, you can set up **Fire Button Actions** — each fire button supports up to 3 simultaneous action slots, plus optional rapid fire for automatic repeat. Choose **SF** (sticky) instead of **RF** and the rapid fire latches: hold the button for 2 seconds and it keeps firing until you tap it again.

### Duo Ultimate SE Buttons

Here you can remap the BLACK and WHITE device buttons. Each button supports up to 3 simultaneous actions — choose from gamepad buttons (0–31), D-Pad directions, keyboard keys, or mouse actions. You can also set the Button Destination to control which port receives the button signals: Port 1 Only, Port 2 Only, or Both Ports.

### USB Settings

This tab controls how the adapter communicates with your host device. **Mouse Emulation** lets you turn the Super Action Controller's speed roller into a USB mouse (Off, On, or Standby) with adjustable sensitivity — handy for desktop use and mouse-driven games. **Keyboard Emulation** lets you enable HID keyboard output (Off, On, or Standby). **USB Emulation** lets you choose how the device appears to the host: Standard (DInput), Classic (DragonRise), Nintendo (Switch), Legacy (Retro), or iOS (DS4). Note that switching mouse, keyboard, or emulation modes requires a device reboot.

---

## Firmware Updates

### Via iCodeHub

Plug your adapter into USB, open your browser, and go to **https://hub.icode.com**. The app will let you know if an update is available — just follow the on-screen instructions.

**Important:** Your settings and presets are not preserved during updates. Save them to your iCodeHub Vault before updating, and reload them afterward. (Presets saved before 2.2 may still have keys 2, 4, 5 and 6 set to directions; set them back to buttons 1, 3, 4 and 5 in iCodeHub if you want the new defaults.)

### Forced Update Mode (Via Pinhole)

If iCodeHub updates aren't available or the device is unresponsive, you can update manually:

1. Hold **both BLACK and WHITE** buttons 2. While holding, plug in the USB cable 3. The device appears as a USB drive named **RPI-RP2** 4. If you don't see the new USB drive, turn off the device and use a pin in the pinhole found on top of the unit to press and hold the recovery switch inside, then turn the device back on 5. Drag the new `.uf2` firmware file onto the drive 6. The device reboots automatically with the new firmware

### Checking Your Firmware Version

Hold the **WHITE** button while plugging in. The LEDs will display your firmware version as a blink sequence: green blinks for the major version, blue blinks for the first minor digit, and magenta blinks for the second minor digit. A zero is shown as a brief pause with no blinks. For example, version **1.02** shows as: 1 green blink, pause (zero), 2 magenta blinks.

---

## Troubleshooting

**No LED activity when plugged in.** Check the power on/off switch on the device and your USB cable, and try a different USB port. Make sure the cable supports data — some cables are charge-only.

**LEDs blink green but your controller isn't detected.** Make sure the controller is fully seated in the DB9 port. If you've connected a Super Action Controller, hold both buttons for 2 seconds until LED 2 turns blue to put the adapter in Super Action Controller mode.

**The speed roller isn't working.** The speed roller only works in Super Action Controller mode. Hold both BLACK and WHITE buttons for 2 seconds until LED 2 turns blue. Some emulators also require mouse mode — review the Mouse settings in iCodeHub.

**Keypad keys aren't doing what you expect.** Open iCodeHub, go to the Ports tab, and check the keypad mapping for the active port. Each key can be reassigned to match what your game expects.

**Your game or emulator doesn't recognize the adapter.** Try a different emulation mode — hold BLACK while plugging in to cycle through them. Check LED 1 to see which mode you're in. Nintendo mode uses D-Pad input; Standard uses analog stick.

**The web app can't find your device.** Make sure you're using Chrome, Edge, or Opera. Try a different USB port. Make sure no other browser tab is already connected to the device.

**Buttons seem mapped wrong.** Use the iCodeHub web app to check the button mapping for your active preset. You may need to adjust the mapping to match what your game expects.

---

## Platform Compatibility

Your adapter works with any device that supports USB HID gamepads:

**PC** — Windows, macOS, Linux **Mobile** — iOS (use iOS mode), Android **FPGA** — MiSTer FPGA **Consoles** — Nintendo Switch (use Nintendo mode), Steam Deck **SBC Retro** — RetroPie, Batocera, RetroArch, EmuElec, Recalbox

---

# Specifications

| Feature | Detail |
|---|---|
| Microcontroller | RP2350 dual-core |
| Controller Ports | 2× DB9 (ColecoVision compatible) |
| USB | USB-C, Full-Speed (12 Mbps) |
| Buttons | 2 (Black, White) |
| LEDs | 2× NeoPixel RGB |
| Emulation Modes | 5 (Standard, Classic, Nintendo, Legacy, iOS) |
| Controller Types | Hand Controller, Super Action Controller |
| Configuration | iCodeHub web app |
| Firmware Update | UF2 drag-and-drop |
| Power | USB bus-powered, with on/off switch |

---

*Duo Ultimate SE H1-COL*

*For web configuration and updates, visit https://hub.icode.com For help and assistance, visit https://www.icode.com/support*