iCode Quad Ultimate CX and CX-W H1

Bring up to four players' original Atari controllers to life on modern devices — from PCs and Macs to Nintendo Switch, MiSTer FPGA, the Atari Gamestation Pro, and beyond. The Quad Ultimate CX has four Atari controller ports built in, so joysticks, paddles, driving controllers, trackballs, and keypads plug straight in with full button remapping, mouse emulation, and a built-in color display. It even plays classic arcade games and Atari 8-bit computer games on its own screen.

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

iCode Quad Ultimate CX

No drivers needed. Just plug in and play.

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

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

Getting Started

Step 1. Plug the Quad into any USB port. The color display lights up with the start-up menu — pick **Game Adapter**, or just wait 8 seconds (see **Start-up Menu** below). No drivers needed — your device is recognized as standard USB gamepads, one for each active port.

Step 2. Connect your Atari controllers. The four ports are numbered **1** to **4** from left to right along the front of the adapter. All four ports work at the same time, so up to four players can play at once.

Step 3. Start playing! The default preset (Preset 0) is set up for Atari joysticks and paddles — it automatically detects which one you plug in. Joystick directions go to the left analog stick and the fire button to gamepad button 0. The six colored buttons on the device are active too.

Step 4. Visit **iCodeHub** in your browser to unlock the full potential of your adapter! Configure button mappings, fine-tune paddle and trackball response, enable mouse emulation, and much more — no software to install.

CX-W: to play wirelessly, turn the CX-W on and pair it with your computer or phone like any Bluetooth controller — see **Wireless (CX-W)** below.

Start-up Menu

Each time the Quad powers up, the start-up menu appears:

- **Game Adapter** — use the Quad as a controller adapter for your computer, console, or MiSTer — everything from **Using the Menu** onward.
- **Arcade Games** — classic arcade games on the built-in display (see **Arcade Games**).
- **Atari Games** — Atari computer and 5200 games on the built-in display (see **Atari Games**).
- **Built-in Games** — Iron Dome, Brick Bash, and Jaw Cruncher (see **Games**).

Move up and down to choose, then click the stick or press **Red** or **Green** (or your controller's fire button) to start. Press **Menu** to go straight to the Game Adapter.

The item with the yellow **star** is the default. If you don't touch anything, it starts by itself after 8 seconds — the bar under the list shows the time left. To make another item the default, highlight it and press **Yellow** or **Blue**, or push left or right. The bottom of the screen shows the USB mode and firmware version.

When you leave an arcade or Atari game, the Quad comes back as a game adapter without the start-up menu. To turn the menu off — the Quad then starts the default right away — see **General Settings**.

Know Your Device

Your Quad Ultimate features six colored face buttons (Red, Green, Blue, Yellow, Black, White), a thumbstick that moves in every direction and clicks, a gray Menu button, and two side buttons. The large color display shows your controllers and menus, with a speaker alongside it.

You'll also find four Atari controller ports along the front, numbered 1 to 4. Firmware recovery is handled through iCodeHub or the on-device firmware-update shortcuts (see Firmware Updates below).

CX-W: the wireless model also has a Bluetooth module with a built-in rechargeable battery and a power switch. It charges whenever the Quad is plugged into USB.

Four Ports, One Setup

Ports **1** and **2** are the main ports — they support every controller type the Quad offers. Ports **3** and **4** follow the setup of Ports 1 and 2: Port 3 uses Port 1's settings and Port 4 uses Port 2's. That way a four-player game is set up once, and every player gets the same controls.

Ports 3 and 4 support **joysticks** and **driving controllers**. If Ports 1 and 2 are set to paddles, a trackball, or a keypad, Ports 3 and 4 work as joysticks.

The display shows two large controller images for Ports 1 and 2. When Ports 3 and 4 are in use, their players appear on the same images as magenta outlines.

Don't need all four? Turn Ports 3 and 4 off — see **Port Mode** below.

Using the Menu

Press the gray **Menu** button to open the on-screen menu. Press it again to close and return to normal operation.

Navigate using the **thumbstick**: push up and down to move through items, push right or click the stick to select, and push left to go back. The **side buttons** move through menus too — the left side button moves up and the right side button moves down. You can also use the colored buttons in menus — **Red** works like pushing right (select or increase a value) and **Green** works like pushing left (go back or decrease a value).

At the top, **Games** opens the Games menu. Below it you'll see four sections:

- **Settings** for your current preset configuration.
- **USB Settings** for how the adapter talks to the host (on the CX-W, this is also where the **Wireless** settings are).
- **General** for system-wide preferences.
- **System** for diagnostics, reset, and firmware updates.

Supported Controllers

The Quad Ultimate is built for Atari controllers, so the console is always Atari — there's nothing to select. Just pick the device type.

Stick+Paddles — The most versatile mode — it auto-detects whether you're using a joystick or paddle controllers, so you don't need to switch manually.

Stick — For the standard digital joystick with 4 directions and a fire button (Atari 2600 CX40 and compatibles). The Atari 7800 two-button joystick (CX78) is supported on Ports 1 and 2. Use this mode if you don't want the system to detect paddles accidentally.

Paddles — Supports dual paddle controllers (CX-30) on Ports 1 and 2 — up to 4 paddle players. Use this mode if you are only going to use paddles and want to bypass auto-detection.

Driving — For the CX-20 driving controller used in games like Indy 500. Works on all four ports. Make sure to review Mouse settings, as some emulators work with the driving controller only if mouse is turned on.

Trackball — Works with the CX-22 and CX-80 trackball controllers on Ports 1 and 2. Make sure your trackball is in trackball mode. Also review Mouse settings, as some emulators work with the trackball only if mouse is turned on.

Keypad — For the 12-key keypad controllers (CX50 Keyboard Controller and CX21 Star Raiders keypad) on Ports 1 and 2 — each key can be individually mapped.

How to Change Your Controller Type

Press the gray **Menu** button, scroll to **Settings** and push right to enter it. Scroll to the port settings, push right, scroll to **Device**, and pick the controller type. Your choice takes effect immediately.

For a shortcut, hold **Black + Menu** to jump straight to the port settings. Because the ports share one configuration, **White + Menu** opens the same settings.

Fine-Tuning Your Controller

Once you've selected your device type, you can fine-tune how it behaves. These settings live inside the port configuration — press the gray **Menu** button, go to **Settings**, select the port settings, and you'll find them there. Everything is saved per-preset.

Function Mapping

This controls how your controller's direction is reported to the host. Scroll to **Function** and push right to cycle through the options: **Left Analog** (left stick), **D-Pad** (digital hat switch), **Right Analog** (right stick), **Trigger Analog** (trigger axes), or **Buttons Only** (directions as button presses). Choose whichever your game or emulator expects.

You can also remap each joystick direction in the **Directions** section — Up, Down, Left, and Right can each be assigned to any gamepad button, direction, or action.

Paddle Settings

If your paddles don't feel quite right, scroll to the **Paddles** section. From there you can adjust the **Resolution** and **Range** (Full or Half). If your paddles are jittery, increase the **Jitter Control** (None to Very High) and **Jitter Averaging** until the input smooths out. The axis each paddle is sent on (Left, Right, or Trigger) can be set in iCodeHub.

You'll also find **Dual Paddles** here: **Combined** keeps both paddles on one USB gamepad, while **Split** gives each paddle its own USB gamepad — Port 1 paddles use the X axis, Port 2 paddles use the Y axis. Split mode uses Ports 1 and 2 only; Ports 3 and 4 are not used while it's on.

Driving and Trackball Settings

These controllers share similar tuning options. Scroll through to adjust **Auto Center** (Off, Very Slow, Slow, Medium, Fast, Very Fast), **Resolution**, **Acceleration** (Off to Very High), **Range**, **Axis**, and **Axis Behavior** (Linear or Circular) until the response feels right. Auto Center makes the axis return to neutral when the wheel or ball stops moving, exactly like an analog stick — great for playing stick games like Asteroids with a trackball.

The Driving section also has a **Raw** option for emulators that decode the driving controller themselves (such as Stella). It sends the controller's two raw signals as gamepad buttons.

Fire Buttons

Each controller has up to 2 fire buttons (A and B). Scroll to the **Buttons** section inside the port settings to configure them. You can assign up to 3 actions to each fire button so a single press triggers multiple things at once. You can also turn on rapid fire for automatic repeat — set the value higher for faster firing.

Remapping Your Device Buttons

Want to change what the device's buttons do? Press the gray **Menu** button, go to **Settings**, then scroll down to **Quad Buttons** and push right to enter it. Select the button you want to change and you can set up to 3 action slots for it — this lets a single button press trigger multiple actions at the same time. You can also turn on **rapid fire** for automatic repeat on any colored button.

The **Joy-Con** section sets what the thumbstick's Up, Down, Left, Right, and Click do while you play. The **Side Buttons** section sets one action each for the left and right side buttons while you play (in menus they always move up and down).

To control which USB gamepad receives your button presses, look for **Destination Port** in the Quad Buttons section. Push right to cycle through Port 1, Port 2, or Both.

What You Can Map To

You have a wide range of actions to choose from: **Gamepad Buttons 0–31** (standard USB gamepad buttons), **Gamepad Directions** (Up/Down/Left/Right), **Mouse Clicks** (Left/Right/Middle/Back/Forward), and **Keyboard Keys** (A–Z, 0–9, F1–F12, arrows, Enter, Esc, Space, Tab, symbols, and modifiers like Shift/Ctrl/Alt/GUI).

Default Button Layout

Button	Default Action
Red	Button 0
Green	Button 1
Blue	Button 2
Yellow	Button 3
Black	Button 9
White	Button 8
Left side button	Button 6
Right side button	Button 7
Thumbstick	D-Pad
Thumbstick click	Button 0

USB Settings

These settings control how your adapter presents itself to the host device. Press the gray **Menu** button and scroll down to **USB Settings** to find them.

Port Mode

Scroll to **Ports Active** and push right to enter it. **Both Ports On** keeps Ports 1 and 2 active. **Port 1 Only** and **Port 2 Only** disable the other port entirely. At the bottom you'll find **Ports 3 & 4**, which turns the third and fourth ports On or Off. The device reboots when you change these; a confirmation screen appears where you can press **Red** or **Green** to confirm, or **Yellow** to cancel without rebooting.

USB Emulation Mode

If your platform isn't recognizing the adapter, scroll to **USB Emulation** inside USB Settings and push right to cycle through the modes. Keep cycling until you find the one that works for your platform:

Mode	Best For
Standard	Windows, Linux, emulators
Classic	Retro gaming platforms
Nintendo	Nintendo Switch
Legacy	Older basic HID systems
iOS	iPhone, iPad
Classic 2	Atari Gamestation Pro

You can also switch emulation modes without opening a menu: hold **Black** while plugging in the adapter to bring up the on-screen USB emulation picker.

Playing on the Atari Gamestation Pro

Choose **Classic 2**. The Gamestation Pro then treats the Quad like its own joystick:

- Set **Function** to **D-Pad** so joystick directions work.
- For paddle games, set the paddle axis to **Trigger** in iCodeHub.
- Mouse and keyboard output are turned off automatically in this mode.

Wireless (CX-W)

The CX-W connects to computers, phones, and tablets over **Bluetooth**, as up to four standard Bluetooth gamepads — one for each player — plus a Bluetooth mouse. All four ports, the colored buttons, and the thumbstick work wirelessly just as they do over USB.

Pairing

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

Wireless Settings

Press the gray **Menu** button, scroll to **USB Settings**, and push right on **Wireless**:

Wireless — **On** or **Off**. Off drops the Bluetooth connection and keeps everything on USB.

Priority — which connection carries your controls when both are connected. **USB First** (the default) uses USB whenever the Quad is plugged into a computer, and keeps Bluetooth connected on standby. **Wireless First** stays on Bluetooth while it's connected, even when USB is plugged in — handy for charging from your computer while you keep playing wirelessly.

Wireless Players — how many Bluetooth gamepads the Quad presents: **4** (the default), **2**, or **1**. Each choice appears as its own Bluetooth device — **iCode Quad Ultimate** (4 players), **iCode Quad Ultimate - Dual** (2), and **iCode Quad Ultimate - Single** (1) — so pair the one you want once. After that, switching between them just reconnects.

Status Indicators

The top right of the display shows three indicators:

Indicator	Meaning
USB green	USB is carrying your controls
USB yellow	USB connected, Bluetooth is carrying your controls
BT green	Bluetooth connected and carrying your controls
BT yellow	Bluetooth connected, on standby (USB is in use)
BT blinking blue	Ready to pair / waiting for a connection
BT gray	Wireless off, or not connected
85%	Battery level — green while charging, red at 10% or less

Battery and Charging

The CX-W charges whenever it's plugged into USB — a computer or any USB charger. While charging, the battery level is shown in green and counts up as the battery charges; it shows **100%** once charging is complete.

When the battery runs out, the display shows **Battery Low — Please Charge** and the Quad stops sending controls until you plug it in.

Good to Know

- Over Bluetooth, the Quad is a standard gamepad. **USB Emulation** modes and **keyboard** output apply to USB only; mouse output works over both.
- Consoles such as the Nintendo Switch and the Atari Gamestation Pro use **USB**.
- If your computer is paired over Bluetooth **and** plugged into USB, it lists the Quad's controllers twice — once for USB and once for Bluetooth. That's normal: only one connection carries your controls at a time (see **Priority**).

Mouse & Keyboard Emulation

Want to use your paddles, trackball, or driving controller as a USB mouse? Or map controller buttons to keyboard keys? Your adapter can output mouse and keyboard signals alongside the gamepad data.

To turn on mouse mode, press the gray **Menu** button, scroll to **USB Settings**, push right to enter it, then scroll to **Mouse** and push right to cycle through the options: **Off**, **Standby** (the host sees the mouse device but no data is sent until you need it), **On Both Ports**, **On Port 1**, or **On Port 2**. Mouse output comes from Ports 1 and 2. You can adjust the mouse sensitivity from Very Low to Very High in the device settings.

To turn on keyboard mode, go to **USB Settings**, scroll to **Keyboard**, and push right to cycle through **Off**, **On**, or **Standby**.

Note that changing mouse or keyboard modes may require the device to reboot since the USB descriptors need to change.

Display Modes

Your adapter has two display modes. The quickest way to change them is to hold **Green + Menu** while the menu is closed — each press cycles to the next mode. You can also press the gray **Menu** button, go to **General**, scroll to **Display**, and push right to cycle through them.

Off turns the display off completely. **Animated** (the default) shows a real-time animated view of your controllers — you'll see them respond as you move the stick, turn the paddles, and press fire. Players 3 and 4 appear as magenta outlines on the Port 1 and Port 2 images.

General Settings

These settings apply across all your presets. Press the gray **Menu** button and scroll to **General** to find them.

To adjust the **Volume**, scroll to Volume and push right to increase or left to decrease. It goes from Muted up to 100%.

To change the **Menu Theme**, scroll to Menu Theme and push right to cycle through Sunset Haze (warm, default), Midnight Ocean (cool blue), Ember (deep red/orange), or Neon Terminal (bright green retro look).

Start-up Menu turns the start-up menu **On** (the default) or **Off**. **Start-up Default** chooses what starts by itself — **Adapter**, **Arcade**, **Atari**, or **Built-in** games; with the menu off, it starts right away. You can also set the default from the start-up menu itself.

Presets

Your Quad Ultimate stores **10 presets** (numbered 0–9). Each preset remembers your entire setup — device type and settings, all button mappings, rapid fire settings, USB emulation mode, port mode (including Ports 3 & 4), and mouse/keyboard settings.

To switch presets, press the gray **Menu** button, scroll to **Settings**, push right to enter it, then scroll to **Preset** and push right to cycle through the numbers 0–9. The new preset takes effect right away; if it uses a different USB setup, the device asks to restart.

Preset 0 is always available. To unlock presets 1–9, register your device with iCodeHub. You can also give each preset a custom name through iCodeHub, making it easy to remember what each setup is for. Until you register, a reminder appears after you pick from the start-up menu, and **Not Registered** appears at the bottom of the main menu.

Games

The Games menu brings all the games together: **Arcade Games**, **Atari Games**, and **Built-in Games**. Open it from the start-up menu, by holding **Yellow + Menu** while the menu is closed, or with **Games** at the top of the main menu.

Built-in Games holds three games you can play right on the color display:

Iron Dome is a Missile Command-style defense game. Move your targeting cursor and press fire to launch interceptors. Protect your cities from incoming missiles across multiple difficulty levels.

Brick Bash is an Arkanoid-style paddle game. Move your paddle left and right and bounce the ball to destroy all the bricks. The ball speeds up as you progress through the levels.

Jaw Cruncher is a Pac-Man-style arcade game — guide your muncher through the maze, gobble the dots, grab the power pellets, and avoid the ghosts.

You can play with the thumbstick or the controller on Port 1 — including paddles and the trackball for smooth analog control. High scores are saved on your device and can be synced to the iCodeHub leaderboard.

Arcade Games and Atari Games are described in the next sections.

Arcade Games

The Quad can also play 13 classic arcade games on its built-in display: **Pac-Man**, **Ms. Pac-Man**, **Galaga**, **Frogger**, **Donkey Kong**, **Donkey Kong Jr.**, **Dig Dug**, **Space Invaders**, **Pooyan**, **Time Pilot**, **Xevious**, **Super Cobra**, and **Scramble**. The games run from the original arcade ROM files, which you provide — **ROMs are not included**. Use only ROM files you are entitled to use.

To start, pick **Arcade Games** from the start-up menu or the Games menu (**Yellow + Menu**). The Quad restarts into the arcade and shows the game list. While the arcade is running, the Quad works as a stand-alone arcade machine — it is not a game controller for your computer until you exit.

Adding Your Games

If the drive has no games yet, the Quad first shows **No games yet**, with a QR code to step-by-step help at **icode.com/help/quad** (CX-W: **icode.com/help/quad-w**): choose **ROM Drive** to open the drive right away (skip to Step 2), or **Start anyway** for the game list, which shows **No ROMs found**. To add games:

Step 1. In the game list, select **ROM Drive (USB)**. The Quad restarts as a USB drive.

Step 2. Connect the Quad to your computer. A drive called **ARCADE ROMS** appears.

Step 3. Copy the ROM zip files onto the drive — in the main folder or in a folder called **ROMS**. Keep the file names exactly as below.

Step 4. Eject the drive on your computer, then press **Menu** or **Black** on the Quad to return to the game list.

Game	ROM file
Pac-Man	puckman.zip
Ms. Pac-Man	mspacman.zip
Galaga	galaga.zip
Frogger	frogger.zip
Donkey Kong	dkong.zip
Donkey Kong Jr.	dkongjr.zip (US) or dkongjrj.zip (Japan)
Dig Dug	digdug.zip
Space Invaders	invaders.zip

Game	ROM file
Pooyan	pooyan.zip
Time Pilot	timeplt.zip
Xevious	xevious.zip
Super Cobra	scobra.zip
Scramble	scramble.zip

The Quad uses the **MAME** ROM set for each game — the parent set, non-merged, so the zip contains every file the game needs. The 512 KB drive holds all of them, with room to spare for your Atari 8-bit games, which share the drive. A game only appears in the list once its zip is on the drive. If a zip isn't the right set, the game is listed in **red**; select it to see which file is missing or wrong.

Your games stay on the drive when you update the Quad's firmware.

The Game List

Game names are shown in yellow. Move with the thumbstick, the Port 1 joystick, or the side buttons, and press **Fire** or **Black** to select. Below the games you'll find:

Display — **Landscape** fits the game to the screen as the Quad sits; **Portrait** shows the game at full size — turn the Quad on its side. The Quad remembers your choice.

Show FPS — shows the frame rate beside the game.

ROM Drive (USB) — restarts as the USB drive to add or remove games.

Volume — push left or right to change it.

Exit — returns to the Quad. A quick press of **Menu** does the same.

Playing

Control	Action
Port 1 joystick or thumbstick	Move
Port 1 fire, Red, Blue, or thumbstick click	Fire (A)
Green or Yellow	Second button (B) — in one-button games, also Fire
Black	Start
White	Insert coin
Hold Menu (1 second)	Back to the game list

Press **White** to insert a coin, then **Black** to start. **Xevious** (zapper / bomb), **Super Cobra** and **Scramble** (laser / bomb) use two buttons: **A** for the first, **B** for the second — the Port 1 joystick's fire button does both. You can also hold **White + Black** to return to the game list.

High Scores

Each game keeps its high-score table, just like the arcade — but unlike the arcade, the Quad remembers it when you turn it off. Your scores are saved when you **leave the game** (hold **Menu**), so return to the game list before switching off. High scores are kept when you update the firmware.

Atari Games

The Quad can also be an **Atari 400/800/XL/XE computer** — and an **Atari 5200** — playing games on its built-in display with your Atari joysticks. It runs game files you provide — **games are not included**. Use only files you are entitled to use. The Atari operating system is built in (AltirraOS), so no Atari ROM files are needed.

To start, pick **Atari Games** from the start-up menu or the Games menu (**Yellow + Menu**). The Quad restarts into the Atari and shows its game list. While it is running, the Quad is not a game controller for your computer until you exit.

Adding Your Games

The Atari games share the arcade's ROM drive.

Step 1. In the game list, select **ROM Drive (USB)** (at the end of the list). The Quad restarts as a USB drive.

Step 2. Connect the Quad to your computer. The **ARCADE ROMS** drive appears.

Step 3. Copy your game files onto the drive — anywhere you like; folders are fine.

Step 4. Eject the drive on your computer, then press **Menu** or **Black** on the Quad to return to the game list.

Kind of game	Files
Programs	.xex, .com, .exe
Cartridges	.car, .rom, .bin
Atari 5200 cartridges	.a52 (also 5200 .bin, .rom and .car files)
Disk images	.atr, .xfd (read only)
Zip files	one game per zip, holding any of the above

Arcade zips on the same drive are left out of the Atari list. Most Atari games are small (8 to 40 KB; a full disk is 90 KB), but the drive also holds your arcade games, so keep an eye on the space.

Real Atari ROMs (optional). A few early games need the original Atari operating system. Copy your own **ATARIOSB.ROM** (400/800), **ATARIXL.ROM** (XL/XE) or **5200.ROM** onto the drive and they are used instead of the built-in ones.

The Game List

Each game shows its kind at the right (XEX, CART, DISK, ZIP or 5200). Move with the Port 1 joystick, the thumbstick, or the side buttons. Press **Fire**, **Red** or **Black** to play the game on an 800XL, or **White** to play it on a 400/800. Below the games you'll find **Settings** and **ROM Drive (USB)**. Press **Menu** to return to the Quad.

Settings:

Setting	Choices
Keyboard	How the on-screen keyboard pauses the game
FPS display	Off / On

Setting	Choices
Volume	0 to 100%
Default machine	800XL / 400/800 (White in the list starts the other)
TV system	NTSC / PAL
Controller test	Shows every control live: the joystick ports, paddles, the thumbstick, and the buttons

Playing

Control	Action
Ports 1 to 4	Atari joysticks 1 to 4
Paddles on Ports 1 and 2	The four paddles, for games such as Kaboom! and Super Breakout
Thumbstick / click	Joystick 1 / Fire
Red	Fire
Black	START
White	SELECT
Green	OPTION
Yellow	SPACE
Blue	On-screen keyboard
Right side button	RETURN
Hold Menu (1 second)	Back to the game list

Turn each paddle from end to end once so the Quad learns its range. The 800XL has two joystick ports; for four-player games such as M.U.L.E., start the game with **White** so it runs on a 400/800, which has four.

On-screen keyboard. Press **Blue** and a keyboard with the Atari's keys opens at the bottom of the screen, and the game pauses. Move the cursor with the joystick or thumbstick and press fire to type a key. Press **Blue** again to close it. The **DRV** key switches disk drive 1 off and on, for the few disk games that won't start while a drive answers: let the game load, type DRV, then press START.

Atari 5200 games. A 5200 game starts on an emulated Atari 5200. The thumbstick is the 5200 controller's analog stick; **Red** (or the thumbstick click) is the bottom fire button and **Green** the top one; **Black** is START, **White** is PAUSE and **Yellow** is *. **Blue** shows the controller keypad on screen (0-9, *, #, START, PAUSE, RESET).

Button Shortcuts

You can quickly access common features without opening the menu by holding button combinations while the menu is closed:

Green + Menu — Cycle through the display modes.

Black + Menu — Jump straight to the port settings.

White + Menu — Also opens the port settings (the ports share one configuration on the Quad).

Yellow + Menu — Open the Games menu.

Red + Black + Menu — Enter firmware update mode.

And at power-on: hold **Black** while plugging in to open the USB emulation mode picker, or hold **Menu** while plugging in to start in firmware update mode.

Diagnostics

If something isn't working right, the built-in diagnostics can help you see exactly what your controller is sending. Press the gray **Menu** button, scroll to **System**, push right, then scroll to **Diagnostics** and push right again. Each diagnostic can be toggled on or off:

Diagnostic	What It Shows
USB Heartbeat	USB communication indicator
FPS Indicator	Frames-per-second counter
Show Positions	Numeric axis values
Analog Data	Paddle and analog readings
Trackball Raw	Raw trackball X/Y/delta
Driving Raw	Raw driving controller signals
Wireless Info	CX-W: battery voltage and level, wireless module version

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System Menu

Press the gray **Menu** button and scroll to **System** to find these options.

To **Reset Defaults**, scroll to Reset Defaults and push right. This immediately restores all settings across all presets to factory defaults — save your presets to the iCodeHub Vault first if you want to keep them.

To view **System Info**, scroll to System Info and push right. You'll see your product name, firmware version, and USB mode.

To enter **Firmware Update** mode, scroll to Update Firmware and push right. This puts the device into update mode (same as holding Red + Black + Menu).

Unlock the Full Potential — iCodeHub Web App

Your Quad Ultimate has powerful features right out of the box, but the real magic happens when you connect it to the **iCodeHub** web app. This is where you can manage all 10 presets with custom names, fine-tune paddle, driving, and trackball response, remap every button with multi-action slots and rapid fire, enable mouse and keyboard emulation, back up your configurations to the Cloud Vault, 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** or **Edge**, click Connect, select your device, and sign in.

Visit: **https://hub.icode.com**

Firmware Updates

Via iCodeHub (Recommended)

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. Your arcade games, Atari games and arcade high scores are kept — except when updating from firmware 1.0 to 1.1, which gives the Quad a new, larger ROM drive: copy your ROM files off the QUAD ROMS drive first and copy them back afterward (arcade high scores start fresh).

CX-W: after a firmware update, the Quad also updates its wireless module automatically the first time it starts — the display shows the progress. Leave it powered until it finishes.

Manual Firmware Update

You can also install an update yourself. First put the device into firmware-update mode: hold **Red + Black + Menu** while the menu is closed (or use System → Update Firmware). If the adapter won't start normally, hold **Menu** while plugging it in.

In update mode the device appears on your computer as a USB drive called **RP2350**. Then:

Step 1. Download the firmware update file (.uf2) for your device from **https://hub.icode.com**.

Step 2. Copy the .uf2 file onto the RP2350 drive. The device installs it and restarts by itself — the drive disappears from your computer when it's done, which is normal.

Make sure you download the correct file for your device. Installing the firmware for a different device can stop the unit from working. The Quad CX and the Quad CX-W each have their own file — the CX-W's ends in W (for example, QuadUltimateCXV11H1.uf2 for the CX and QuadUltimateCXV11H1W.uf2 for the CX-W).

If the device won't go into update mode, see **The device won't go into firmware update mode** under Troubleshooting.

Troubleshooting

Your controller isn't detected. Make sure it's firmly plugged in. Press the gray Menu button, go to Settings, open the port settings, and check that you've selected the correct device type. Remember that paddles, trackballs, keypads, and the 7800 second fire button work on Ports 1 and 2 only. You can also turn on diagnostics to see raw input data — press Menu, go to System, then Diagnostics.

Ports 3 and 4 don't respond. Press Menu, go to USB Settings, open Ports Active, and make sure **Ports 3 & 4** is On. Also check that Dual Paddles is set to Combined — Split mode uses Ports 1 and 2 only.

Your host device doesn't recognize the adapter. Try a different USB cable or port. Press Menu, go to USB Settings, scroll to USB Emulation, and push right to try a different mode. Standard works for most platforms, but some require Classic, Nintendo, Legacy, iOS, or Classic 2.

Buttons aren't responding. Make sure you're not in the menu — press Menu to exit. Press Menu again, go to Settings, then Quad Buttons, and check that your buttons are mapped to the actions you expect. Also check the Destination Port setting. If something seems wrong, go to System and select Reset Defaults to start fresh.

The display is blank. Hold Green + Menu to cycle through display modes — it may be set to Off. If it's still blank, press Menu, go to System, and select Reset Defaults.

Mouse or keyboard not working on your host. Press Menu, go to USB Settings, scroll to Mouse or Keyboard, and make sure it's turned on (not Off or Standby). Your host may need a reboot after the USB descriptors change. Try disconnecting and reconnecting the adapter.

You see several gamepad devices on your host. That's normal — the Quad presents one USB gamepad per active port, up to four. If you need fewer, turn off Ports 3 & 4, or set Ports Active to Port 1 Only or Port 2 Only. On the CX-W, a computer connected by both USB and Bluetooth lists the controllers twice; only one set is active at a time.

No arcade games are listed. Select ROM Drive (USB) in the game list and check that the zip files are on the ARCADE ROMS drive with the exact names shown in Arcade Games. A game listed in red has the wrong ROM set — select it to see which file is missing or wrong.

Arcade high scores were lost. Scores are saved when you leave a game by holding Menu. Return to the game list before switching the Quad off.

An Atari game crashes or shows a blank screen. Some early games need the original Atari operating system: copy ATARIOSB.ROM and ATARIXL.ROM onto the drive (see Atari Games), or start the game with White to run it on a 400/800. If a cartridge .bin is mistaken for the wrong kind, rename it .car or (for a 5200 game) .a52.

The device won't go into firmware update mode. If the button shortcuts don't work — for example, the firmware doesn't start — use the small pin hole on top of the device, near the built-in thumbstick. Unplug the device. With a straightened paper clip, gently press and hold the update button inside the hole while you turn the device on by plugging it into your computer, and let go when the **RP2350** drive appears. Then copy the .uf2 file onto the drive (see Firmware Updates).

CX-W: the Quad doesn't show up in Bluetooth. Check that Wireless is On (Menu → USB Settings → Wireless) and that the battery is charged or USB is plugged in. The BT indicator blinks blue while the Quad is ready to pair. If you changed Wireless Players, pair the new device name once.

CX-W: controls go over USB instead of Bluetooth. With Priority set to USB First, USB takes over whenever the Quad is plugged into a computer (BT shows yellow). Set Priority to Wireless First to stay on Bluetooth while charging from a computer.

Platform Compatibility

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

PC — Windows, macOS, Linux **Mobile** — iOS, Android **FPGA** — MiSTer FPGA **Consoles** — Nintendo Switch, Steam Deck, Atari Gamestation Pro **SBC Retro** — RetroPie, Batocera, RetroArch, EmuElec, Recalbox **Bluetooth (CX-W)** — Windows, Android, and other devices that support Bluetooth gamepads

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Specifications

Spec	Detail
Processor	RP2350B dual-core, 200 MHz
Controller Ports	4× Atari DB9
USB	USB 2.0 Full Speed
USB HID Devices	Up to 4 gamepads + mouse + kbd
Display	320×240 color TFT (ST7789)
Audio	Polyphonic speaker
Storage	On-board flash (LittleFS)
Power	USB bus-powered (CX-W: battery or USB)
Console	Atari 2600 / 7800 controllers
Presets	10 device / 100 cloud
Arcade	13 games, 512 KB USB ROM drive
Atari Games	400/800/XL/XE and 5200, same drive
Wireless (CX-W)	Bluetooth LE, up to 4 gamepads + mouse
Battery (CX-W)	500 mAh rechargeable, USB charging

Open-Source Software

Atari Games uses the open-source atari800 emulator with AltirraOS by Avery Lee, and Arcade Games uses Pico2Arcade. Both are released under the GNU GPL v3; the source code for the version in your firmware is available at github.com/alijani1/Pico2Atari8 and github.com/alijani1/Pico2Arcade.

Quad Ultimate CX and CX-W H1

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