

SmartUSBHub Studio Pro User Manual

Intended audience: General users of SmartUSBHub Pro devices, R&D engineers, and test engineers

Applicable software: SmartUSBHub Studio Pro 1.0.0 and later compatible versions

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1. Overview

SmartUSBHub Studio Pro is a desktop application for SmartUSBHub Pro programmable USB hubs. It connects to SmartUSBHub Pro devices and provides per-port power control, USB data-line control, real-time measurements, waveform visualization, data logging, device configuration, firmware upgrades, and software updates.

You can use it for the following everyday tasks:

- Turn the power of an individual USB port on or off.
- Enable or disable the USB data lines of an individual port.
- View the voltage, current, power, and total power consumption of each channel.
- View oscilloscope-like voltage and current waveforms on the real-time monitoring page.
- Save measurements as CSV files for analysis in Excel or other tools.
- Configure interlock mode, button lock, power-loss state saving, default channel states, and other operating modes.
- Connect multiple SmartUSBHub Pro devices and control them from a single interface.
- Check online for software and device firmware updates.

2. Installation and Startup

macOS

1. Double-click the `studioPro-<version>-macOS-<architecture>.dmg` installer.
2. Drag `studioPro.app` to the `Applications` folder.
3. Open SmartUSBHub Studio Pro from Applications.

Note

If macOS reports that it cannot verify the developer, allow the application under **System Settings > Privacy & Security**, or Control-click the app in Finder and select **Open**.

Windows

Double-click `studioPro.exe` to run the application. If Windows displays a security confirmation, allow the application to run.

Before You Begin

1. Connect the SmartUSBHub Pro to the computer and make sure that the device is powered.
2. Wait for the operating system to recognize the device.
3. Open SmartUSBHub Studio Pro.

SmartUSBHub Pro communicates through a USB CDC serial interface and normally requires no additional driver.

Important

If the device has separate control and data interfaces, connect them to the USB host according to the labels on the device. The control software must be able to access the control interface before it can detect and control the device.

3. Interface Overview

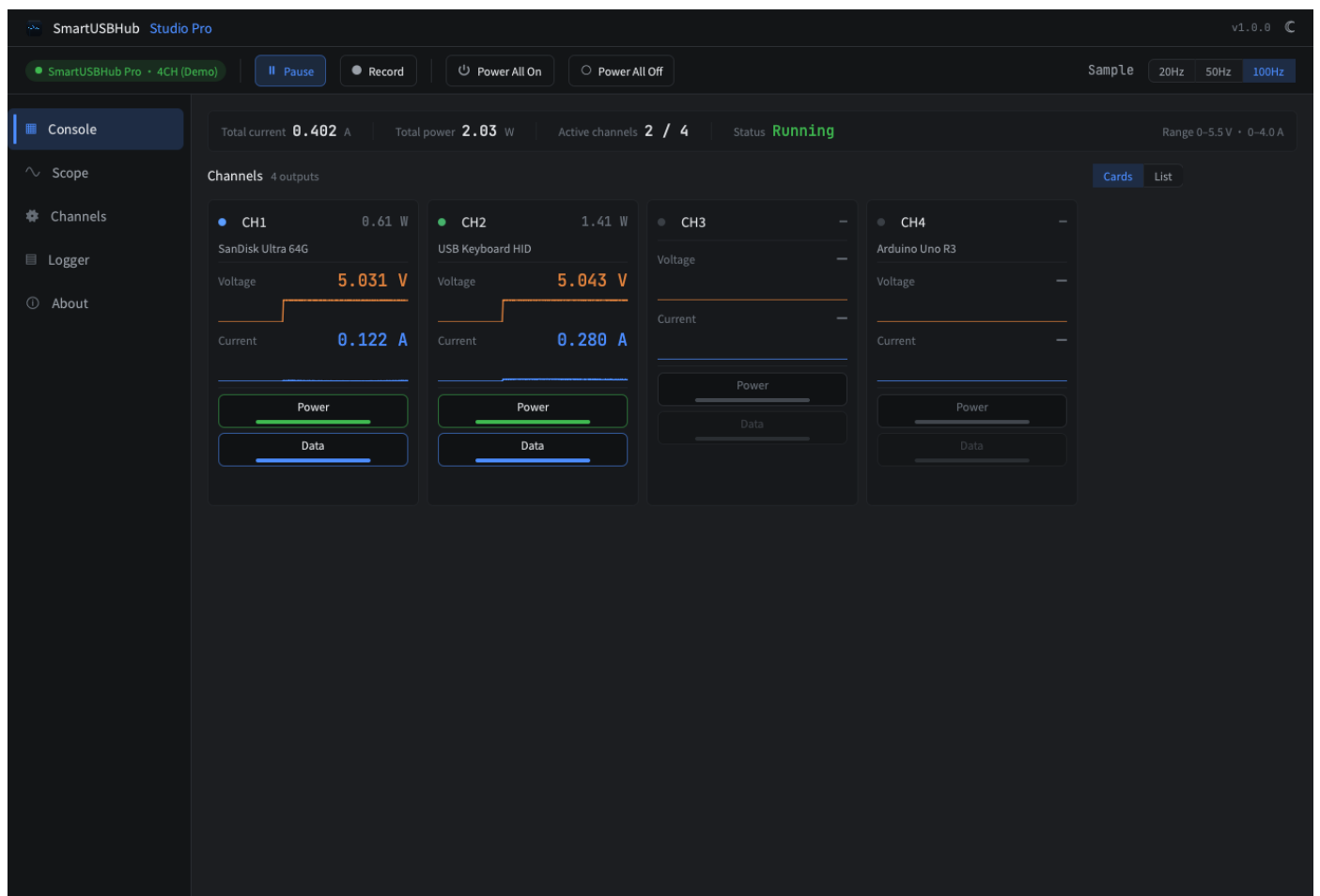


Figure 1: Console overview, with page navigation on the left and the global toolbar at the top.

Page navigation is located on the left, and the global toolbar is located at the top.

The main pages are:

- **Console:** View all channel states and control the power and data lines of each channel.
- **Real-Time Monitor:** View voltage and current waveforms, with zoom, pan, and auto-ranging controls.
- **Device Management:** Configure default channel states, interlock mode, button lock, power-loss state saving, and device maintenance options.
- **Data Logger:** View live measurements in a table and record them to CSV files.
- **About:** View software and device information, official links, the user agreement, and update controls.

Common controls on the top toolbar include:

- **Run/Pause:** Pause or resume live updates.
- **Record:** Start or stop CSV data recording.
- **All On/All Off:** Control all channels on all connected devices at once.
- **Check for Updates:** Open the update window from the About page to check for software and device firmware updates.

Use the theme button in the upper-right corner to switch between light and dark themes.

4. Connecting Devices

When the application starts, Studio Pro automatically scans for and connects to SmartUSBHub devices. After a successful connection, the connection status at the top displays the device model, while the device information area displays details such as firmware and hardware versions.

If no device is connected, the application displays offline demonstration data. Demo mode is intended only for exploring the interface and does not control real hardware.

Multiple Devices

When multiple SmartUSBHub Pro devices are connected, the application automatically connects to all of them and displays their channels together. Channel labels include a device prefix, such as `D1·CH1` or `D2·CH3`, so that channels from different devices can be distinguished easily.

Note

A single device can be disconnected and reconnected while the application is running. If you connect or disconnect devices in a multi-device setup, restarting the application is recommended so that all devices are enumerated again.

5. Controlling Port Power and Data Lines

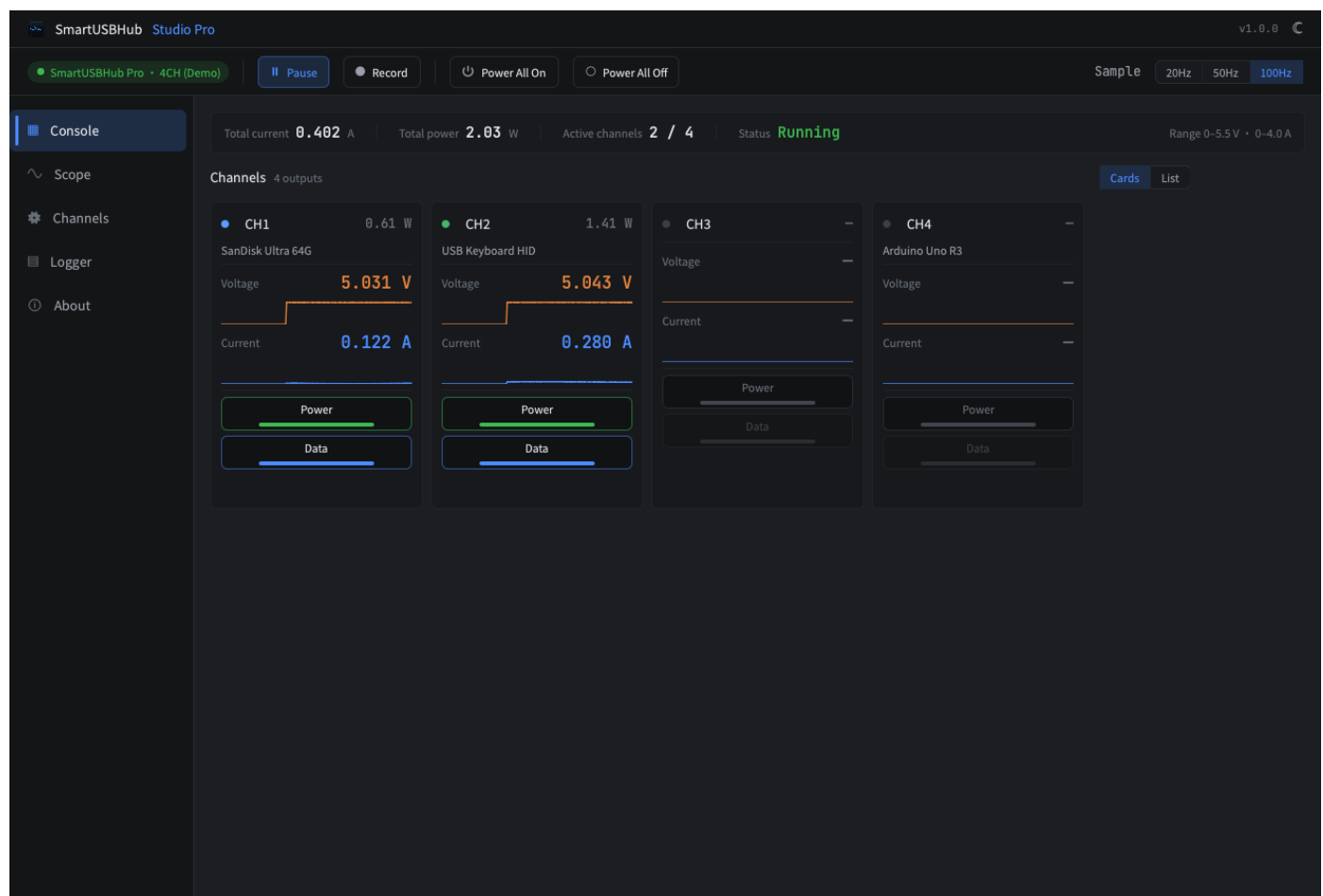


Figure 2: The Console provides independent power and data-line control for every channel.

Each channel on the Console corresponds to one downstream USB port.

- Turn **Power** on to supply power to the port.
- Turn **Power** off to remove power from the port. The data-line switch is also disconnected, causing the downstream device to disconnect from the computer or power down.

- Turn **Data** on to connect the port's USB data lines.
- Turn **Data** off to keep the port powered while disconnecting USB data communication with the computer.

Power and data lines are normally enabled together. To power a device without allowing data communication, leave Power enabled and turn Data off.

All On and All Off

Click **All On** or **All Off** on the top toolbar to control every channel at once. When multiple devices are connected, the command applies to all channels on all connected devices.

⚠ Caution

Before switching channels in bulk, confirm that all connected downstream devices can be powered on or off at the same time. Otherwise, active tests, firmware programming, or production processes may be interrupted.

6. Viewing Voltage, Current, and Power

Each channel on the Console displays its current voltage, current, and power, along with a miniature trend graph. The summary area at the top displays total current, total power, the number of active channels, and the current run state.

To examine the readings at a specific moment, click **Pause**. Click **Run** to resume live updates.

7. Viewing Real-Time Waveforms

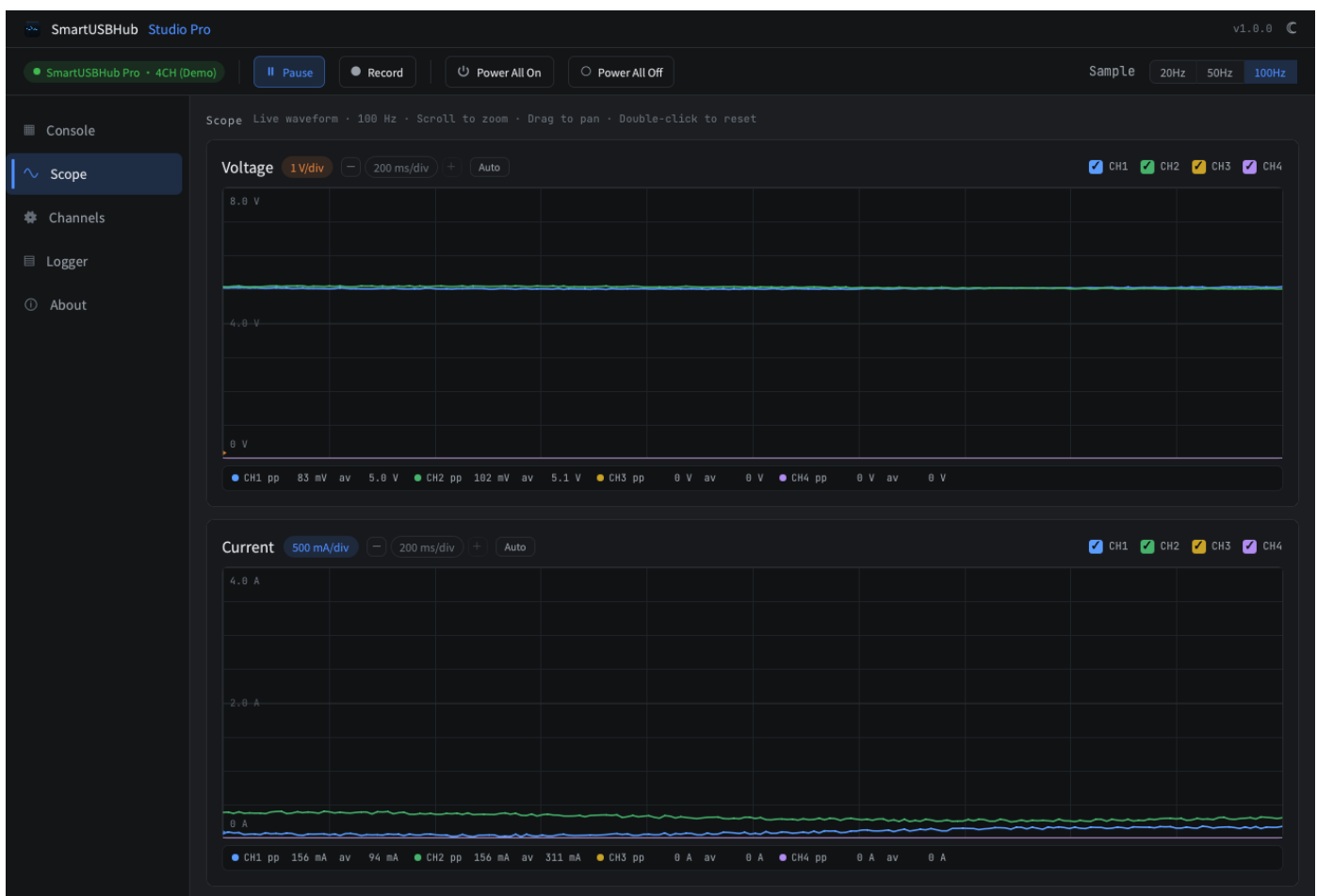


Figure 3: The Real-Time Monitor displays voltage and current waveforms.

The Real-Time Monitor shows how voltage and current change over time.

- The upper plot displays voltage waveforms.

- The lower plot displays current waveforms.
- Channel selectors at the top or on the right can show or hide individual channels.
- Use the mouse wheel to zoom the waveform.
- Click and drag to pan the waveform.
- Double-click the plot area to reset the view.
- Use `V/div`, `mA/div`, and `ms/div` to adjust the vertical scales and time scale.
- Use **Auto** to select a suitable display range automatically.

The page also displays the peak-to-peak and average values of each waveform, making it easier to assess signal variation quickly.

8. Device Management

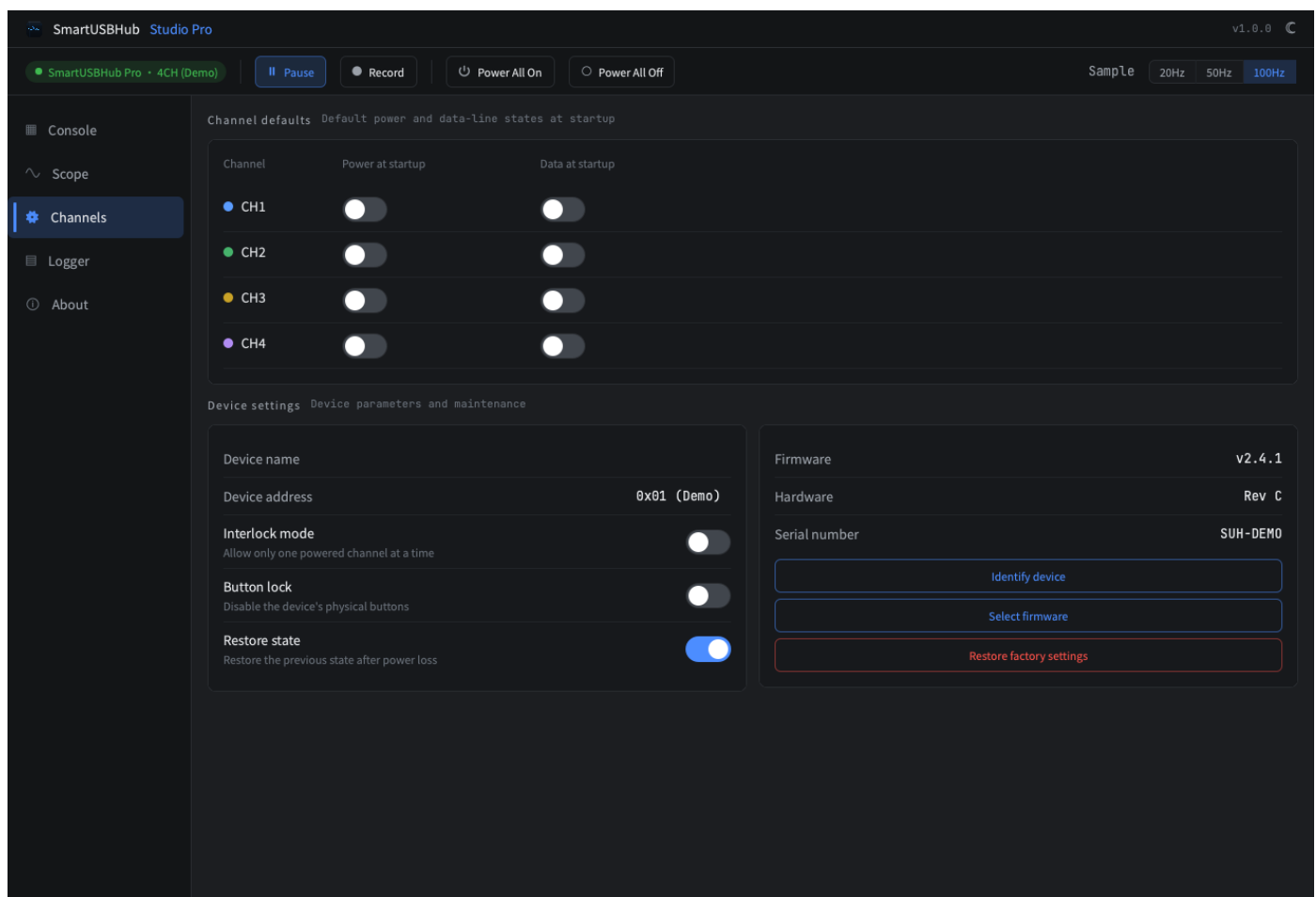


Figure 4: The Device Management page configures default channel states and device policies.

Use the Device Management page to configure how the SmartUSBHub Pro operates.

Default Channel States

You can set the default power and data-line states applied to each channel after the device powers on. This is useful for fixed test stations, automated processes, and production fixtures.

Interlock Mode

When interlock mode is enabled, only one channel can be powered at a time. Use this mode when multiple devices under test must never be connected simultaneously.

Button Lock

When button lock is enabled, the physical buttons on the device are disabled to prevent accidental operation. This setting might not be displayed for models without physical buttons.

Save State on Power Loss

When enabled, the device saves the current channel states and restores them the next time it powers on.

Identify Device

When multiple devices are connected, use this function to identify the device currently being configured. After you click **Identify Device**, the corresponding device's Sys indicator flashes rapidly for several seconds.

Factory Reset

A factory reset clears user settings stored in the device and restores the default configuration.

9. Data Logging

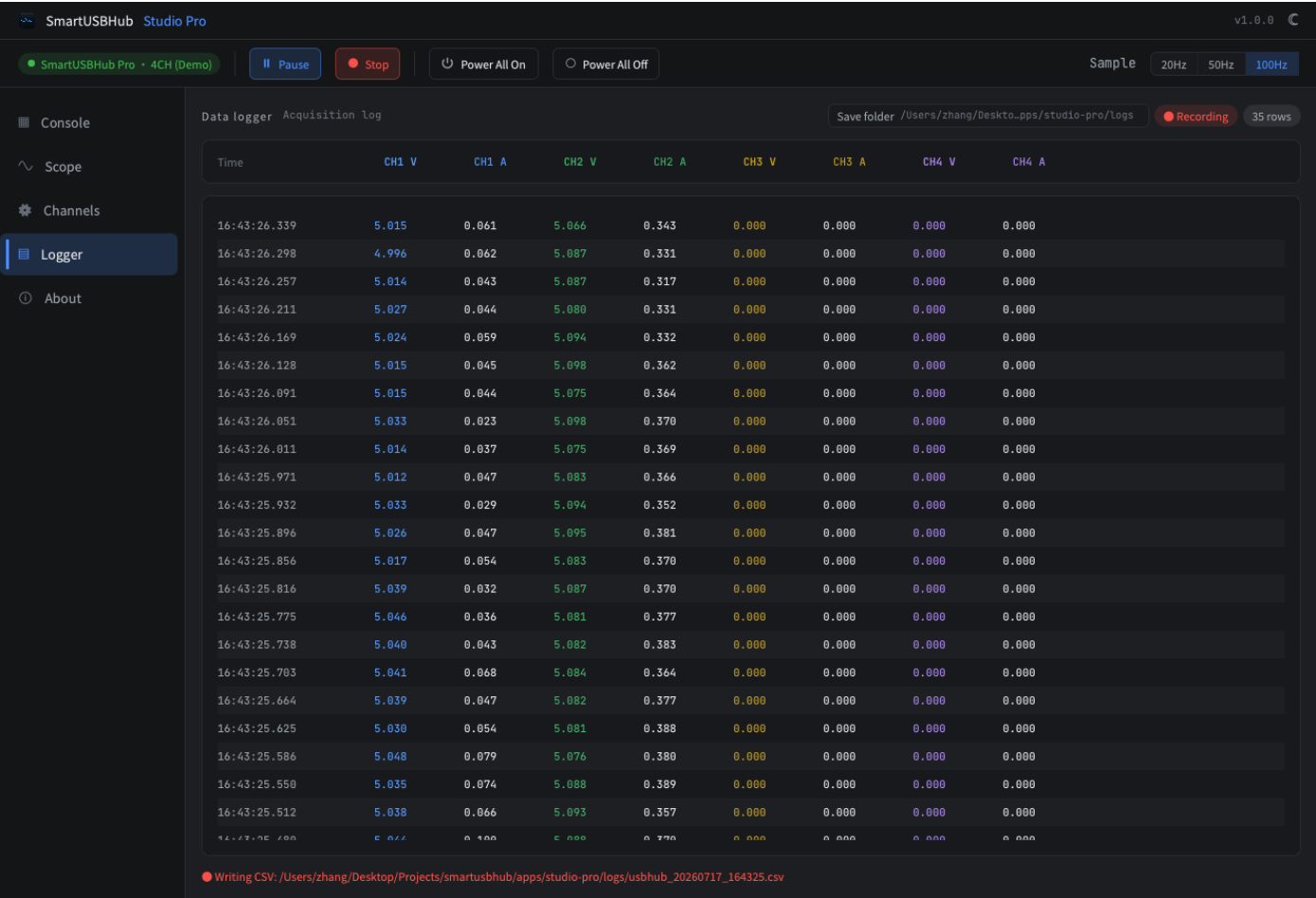


Figure 5: The Data Logger displays live measurements and records them to CSV files.

Use the Data Logger to view live measurements in a table and save them to CSV files.

1. Click **Save Directory** to select the folder where CSV files will be stored.
2. Click **Record** on the top toolbar to start recording.
3. Click **Stop Recording** to end the recording.

If no save directory is selected, the application stores files in the `logs` folder by default. CSV filenames include the full date and time, and the files can normally be opened directly in Excel, Numbers, WPS Office, or data-analysis software.

10. Checking for Updates

Click **Check for Updates** on the About page to check for both:

- Updates for SmartUSBHub Studio Pro itself.
- Firmware updates for the currently connected devices.

If a newer software version is available, click **Download and Install**. The installer is downloaded to the system's Downloads folder and opened by the operating system.

If new device firmware is available, click **Download and Upgrade**. After the firmware upgrade completes, the device restarts automatically, and the application attempts to reconnect and refresh the displayed version information.

⚠ Caution

Do not disconnect the device, close the application, or allow the computer to enter sleep mode during a firmware upgrade.

11. Local Firmware Upgrade

The Device Management page or update window may provide a local firmware upgrade option for installing a local `.fw` firmware file.

Online firmware updates are recommended for general users. Use a local firmware upgrade only when:

- Official technical support has provided a specific `.fw` file.
- The update server is unavailable in an offline or restricted network environment.
- You need to restore or test a specific firmware version.

After a firmware file is selected, the application checks its information and requests confirmation before starting the upgrade. Never force an upgrade if the firmware model does not match the connected device.

12. Troubleshooting

Device Not Found

Check the following:

1. Make sure that the device is powered.
2. Make sure that the USB cable supports data transfer.
3. Make sure that the device's control interface is connected.
4. Check whether the operating system has detected the USB serial device.
5. Make sure that another serial tool, automation script, or older version of the application is not using the device.
6. Disconnect and reconnect the device, wait several seconds, and reopen the application.

The Hub Appears on the Console, but the Downstream USB Device Does Not

Check the following:

1. Make sure that Power is enabled for the corresponding channel.
2. Make sure that Data is enabled for the corresponding channel.
3. Check whether the downstream device requires additional power or startup time.

4. Make sure that the correct data interface is connected to the computer.

No Voltage or Current Readings

Confirm that the device model and firmware version support measurement functions. If a firmware upgrade has just completed, disconnect and reconnect the device, then restart the application.

Waveforms or Controls Do Not Refresh

Click **Pause**, then click **Run**. If updates still do not resume, restart the application.

Where Are Recorded Files Saved?

Files are saved to the `logs` folder in the application directory by default. You can select a different location by clicking **Save Directory** on the Data Logger page.

Update Check Failed

Make sure that the computer can access the internet, then try again later. Core device-control functions do not require internet access, so the application can still connect to and control devices if update checking is unavailable.

13. Safety Information

- Do not disconnect USB, close the application, or allow the computer to enter sleep mode during a firmware upgrade.
- Before controlling critical equipment, verify the channel number, device number, and channel name.
- Before enabling interlock mode, power-loss state saving, or default power-on states, make sure that these settings are appropriate for the test or production process.
- Before using All On or All Off, confirm that every downstream device is ready for the operation.
- When the device is used for automated testing or production, validate the process first with no load or in a low-risk environment.

14. Support

Website: <https://www.mixedsignallab.com>

Store: <https://mixedsignallab.taobao.com>

Technical support: support@mixedsignallab.com

When contacting technical support, please provide:

- The SmartUSBHub Studio Pro software version.
- The device model.
- The device serial number.
- The firmware version.
- The operating system version.
- The steps that led to the issue.

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