

Cambrionix Diagnostic Tool

User Manual

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2. Introduction

This manual is designed to explain the features of the Cambrionix Diagnostic Tool and explain the best practices for using it. The Cambrionix Diagnostic Tool (name="Hub-Properties.Model Number" />) is designed to perform tests on Cambrionix hardware to diagnose any issues that you may be experiencing. The Cambrionix Diagnostic Tool can be used to test various functions and features of your Cambrionix hardware, such as:

- Correct and up to date firmware
- Device connections
- Port speeds

You can also use name="Hub-Properties.Model Number" /> to manage Cambrionix hardware and can perform functions such as:

- Set up the internal FTDI chip
- Program serial numbers
- Update Firmware
- Change port modes

2.1. Prerequisites

In order to use the Cambrionix Diagnostic Tool you must have downloaded and installed the Cambrionix Hub API and be at least version 3.9. The Cambrionix Hub API will need to be running and have access to the ports. We recommend using the latest version of the Cambrionix Hub API at all times. You can download the latest version of the API from our website at the following link. <https://www.cambrionix.com/cambrionix-api> or through either the Cambrionix Connect applications.

The Cambrionix Diagnostic Tool will only work on Windows host systems running at least Windows 10.

The Cambrionix hubs you wish to test must be connected and visible on the host system you can check this by using Cambrionix Connect applications, or when you open name="Hub-Properties.Model Number" /> the home page will display available hubs.

3. Pages

Once you have the Cambrionix Hub API and the Cambrionix Diagnostic Tool installed and your hubs connected to your computer you can begin to test the hubs.

Cambrionix Diagnostic Tool has several pages that can be accessed via the menu on the left-hand side of the application. Each page will give you access to different information and functions using the API and your hub. A brief description of each section can be seen below.

Section	Description
Home	An overview of connected hubs and tests
Setup	Setup and program the hub and its component's
Firmware	Firmware management for connected hubs
Settings	Settings for tests and the application
About	Information on running versions of the API and Cambrionix Diagnostic Tool
Help	A link to Cambrionix Support centre

These pages can be accessed by selecting the icon on the menu or by opening the menu at the top left and selecting the page name.

3.1. Home

From the home page you can view all connected hubs and run tests. You will see a list of connected hubs if you click on the down arrow on the right hand side you will then get the list of tests available for your Cambrionix hardware. The tests available are:

- Firmware
- iPhone connection test
- Upload speed test

You can view each test in more details by clicking on show detail on the right hand side of the test line. When you click on show detail you will see detail such as:

Serial Number	The Serial number of the hub that has been selected for testing
Description	The product name

When you run a test you will receive a visual confirmation whether the test has passed or failed. If the test passes then a green circle with a tick will appear if the test fails then you will get a red circle with an exclamation mark inside it.

Pass	Fail
	

Firmware test

The firmware test will run against the hardware and check that the hub has firmware which is up to date. The test will check the firmware version loaded onto the hardware and compare to the latest version available from the Cambrionix site.

Once you have performed the test you will get additional information available in the show detail section. CDT will show you the firmware loaded onto your hub and the latest firmware file that is available.

iPhone connection test

This test is designed to ensure an iPhone can connect to each port. The test will run for all ports and will display a pass or a fail mark for each port individually.

Upload speed test

You will get the option of USB2 File upload or both USB3 depending on the capabilities of the Cambrionix hub you are connecting. You can discover more information on the capabilities of your Cambrionix hub in the product user manuals www.cambrionix.com/product-user-manuals

The test will require a memory stick connected to each port you wish to test and will perform a read and a write test to check the actual speed that can be achieved for each port. Once completed you can select "Show Detail" to get the exact speeds with can be achieved with each function.

The size of the file you wish to use for the upload test and the target speeds can be set in the [Settings](#) page.

3.2. Firmware

From this page, you can view and manage firmware versions and updates. You can access this page from the menu in Cambrionix Diagnostic Tool. (Firmware)

On the left half of the page, you can see all available Cambrionix Hardware. The available Cambrionix hardware is all the hubs connected to Cambrionix Diagnostic Tool via the API. You can filter the hardware in the following ways.

Filter	Description
Type	Firmware type*
Endpoint	Computer name
Description	Hub Name

*products and their firmware type below

Firmware	Part Number	Product Name
Universal	PP15S	PowerPad15S
Universal	PP15C	PowerPad15C
Universal	PP8S	PowerPad8S
Universal	SS15	SuperSync15
Universal	TS3-16	ThunderSync3-16
SMART	TS3-C10	ThunderSync3-C10
Universal	U16S Spade	U16S Spade
Universal	U8S	U8S
PDSync	PDSync-C4	PDSync-C4
Universal	ModIT-Max	ModIT-Max
Motor Control	Motor control board	ModIT-Max

Selecting hubs

From the left side of the page, you can select the hubs you wish to update. Any hubs that do not have the latest version of the firmware will have the firmware version number in red. The firmware version will be blue if the hub is up to date.

You can select multiple hubs at once; you will know it is selected as the box will be highlighted, and the right-hand side of the page will show a device to be updated along with the available firmware versions.

Updating the Firmware

Once you have chosen the hubs you wish to update, the right side of the page will show that the hubs are to be updated from one version of firmware to another. Cambrionix Diagnostic Tool will automatically choose the latest version of the firmware to update to; this can be changed by using the drop-down and selecting the firmware you wish to install on the hub. We recommend always using the latest firmware version unless there is a specific reason not to update.

Once you have selected the hubs you wish to update and the firmware version to update, press the update firmware button, which will then run the process. Once updated, a tick will appear next to the update preview on the right-hand side to show the update has been successful.

Errors

It is important that once you have started a firmware update that you do not disconnect the hub from the host system. If you disconnect then the hub will be in an unusable state. This state is called bootloader mode, which is a different piece of firmware which is used to launch the hub firmware. If you get the hub stuck in bootloader mode then you will need to recover the hub using the Cambrionix Command line updater which can be downloaded from the below link along with the user manual.

<https://www.cambrionix.com/cambrionix-clu>

3.3. Settings

From the settings page you can access various settings relating to the Cambrionix Diagnostic Tool

Setting	Description
Logging	This setting will manage where the output logs and information from testing will be stored
Port Mode	You can change port mode on the connected Cambrionix hub
File Upload Test	You can configure the file upload tests
Firmware Test	You can adjust the firmware test settings
Theme	Set the theme of the application
Update	Update the application

Logging

You can click on "select folder" which will open up file explorer and you can then select where you would like to save and store the test logs.

Port Mode

The port modes can be altered using this setting switched manually from one mode to another.

Charge	Turn specific ports or the whole hub to charge mode
Sync	Turn specific ports or the whole hub to sync mode (data and power channels open)
Biased	Detect the presence of a device but it will not sync or charge it.
Off	Turn specific ports on or off or switch the whole hub on or off. (no power and no data channels open)

Not all products have each mode available, check individual product user manuals for the modes that are supported. www.cambrionix.com/product-user-manuals

File upload test

You can configure the settings for the "file upload test" from this section of the page, the File size and Target speed can be configured individually for both USB2 and USB3:

Setting	Description
Sequential Uploads	You can toggle whether you would like all ports to be tested sequentially (one after the other)
File Size	You can set the size of the file that is used in the upload test, this will be a file size in MB. You can also reset back to default values
Target Speed	You can set the Read and Write target speeds in MBps. You can also reset back to default values

Firmware Test

You can set the maximum time between checking for new firmware in days, you will also be able to manually "check now" and view the time passed since name="Hub-Properties.Model Number" /> last checked for the latest firmware.

Theme

You can also select the theme of the Cambrionix Diagnostic Tool, which will visually change how the application looks.

Theme	Description
Default	This will match the OS theme
Light	This is a white background for typical use
Dark	This is a black background for less eye strain in lower light

Update

Using this setting you can view and update the version of name="Hub-Properties.Model Number" />. This section will show you the current version and allow you to select an update channel, either the release version or a legacy version of the release. You can also select "show prerelease" which will then add the beta channels and you then will have the option to install the latest and legacy versions of the beta channel.

Once you have selected a version you can then press "UPDATE" to update to the chosen version.

3.4. About

From this page, you can see various pieces of information about the API and Cambrionix Diagnostic Tool. You can navigate to this page by selecting 'about' on the menu (About)

You can see the version of the local API that is running alongside the version of Cambrionix Diagnostic Tool.

There is a link to be able to download and view the Cambrionix Hub API User manual.

<https://downloads.cambrionix.com/documentation/en/API-User-Manual.pdf>

There is a link to be able to download and view the Cambrionix Diagnostic Tool User manual.

<https://downloads.cambrionix.com/documentation/en/CDT-User-Manual.pdf>

There is a link to go to the supports desk, and also a link to send an email to support.

3.5. Help

By selecting the help page on the menu you will be taken to Cambrionix Support centre. From the support centre you can;

- Get technical support for Cambrionix hardware and software
- Suggest a new product
- Suggest a new feature for Cambrionix hardware and software
- Suggest an improvement to existing Cambrionix hardware and software

When contacting support, please supply the product information for the hub in question. This can be found on the Device Information Plate which is either on the underside or back of the unit. Providing serial and Purchase order numbers, can help identify your specific product and speed up the process.

With any hardware support we recommend checking the troubleshooting section in the products user manual.

www.cambrionix.com/product-user-manuals

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Cambrionix Patents

Title	Link	Application Number	Grant Number
Syncing and Charging Port	GB2489429	1105081.2	2489429
CAMBRIONIX	UK00002646615	2646615	00002646615
CAMBRIONIX VERY INTELLIGENT...	UK00002646617	2646617	00002646617

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The use of Cambrionix Diagnostic Tool is subject to the Cambrionix Connect SaaS conditions, the document can be downloaded and viewed using the following link.

<https://downloads.cambrionix.com/documentation/en/Cambrionix-Connect-SaaS-Conditions.pdf>

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