

# User Manual

MC14-2.4A



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## 2. Your MC14-2.4A at a glance

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The MC14-2.4A has been designed primarily for desktop use, being highly compact and quiet. It provides 12W of charging power to each of its 14 USB 2.0 Type-A ports, allowing mobile devices to be charged quickly, safely and reliably. All ports can be controlled using Cambrionix software to enable charging whilst monitoring important port and device information.

The MC14-2.4A can charge attached USB devices without using a local computer, and our intelligent charging algorithm allows almost any device to be charged at its optimum rate (up to 2.4A). The firmware can be updated to enable new charging profiles to be added, ensuring the MC14-2.4A can charge the latest devices. It is ready to charge out-of-the-box.

### 3. Safety

This user manual is for informational purposes only, it contains information for the start-up and operation of this product. Note: the contents and the product described are subject to change without notice. To avoid injuries and damage, observe the safety instructions in the user manual.

This manual has been arranged to follow IEC/ICEE 82079-1 standard. This is to facilitate the easier understanding and location of information relating to the MC14-2.4A. Any errors or omissions can be reported using our support ticket system (see Help and Support). This way, any issues can be collected and fixed.

Understanding and observing the instructions in this user manual are prerequisites for hazard-free use and safety during operation. This user manual cannot cover all possible applications. If you would like additional information or if problems arise that are not sufficiently addressed in this manual, please ask your distributor or contact us directly using the means preferred, which are located on the back cover of this manual.

	 <b>CAUTION</b>
	<p><b>Personal Injury and Damage to the product</b></p> <ul style="list-style-type: none"> <li>• Observe the safety instructions in this user manual</li> </ul>

#### 3.1. Signal word panel

Depending on the probability of serious consequences, potential dangers are identified with a signal word, the corresponding safety colour, and if appropriate, the safety alert symbol.

 <b>CAUTION</b>
<p>Indicates a potentially hazardous situation that, if not avoided, may result in moderate or minor (reversible) injury.</p>

<b>CAUTION</b>
<p>Indicates a potentially hazardous situation which, if not avoided, may result in damage to the product and its functions, or to property in its proximity.</p>

#### 3.2. Safety alert symbol



Use of the safety alert symbol indicates a risk of injury.

Observe all measures that are marked with the safety alert symbol in order to avoid injury

### 3.3. Pictograms

Warning Signs	
 Electrical hazard	 Fire Hazard

Mandatory action signs	
 Read operating instructions	 Mandatory regulation

### 3.4. Product modification

Cambrionix products are designed and manufactured to meet the requirements of UK and International safety regulations. Modifications to the product could affect safety and render the product non-compliant with relevant safety standards, resulting in injury or damage to the product.

	 <b>CAUTION</b>
	<p><b>An electric shock or personal injury may occur</b></p> <ul style="list-style-type: none"> <li>• Do not modify the product in any way.</li> <li>• Do not dismantle the product.</li> </ul>

	 <b>CAUTION</b>
	<p><b>Fire, or personal injury may occur</b></p> <ul style="list-style-type: none"> <li>• Do not obstruct air vents on the product.</li> <li>• Do not cover the product in combustible material.</li> </ul>

	<b>CAUTION</b>
	<p><b>Damage to your product may occur</b></p> <ul style="list-style-type: none"> <li>• Do not bend or compress any part of the product.</li> </ul>

### 3.5. Power supply

This section describes the safety precautions you must follow when using the power supply.

	<b>⚠ CAUTION</b>
	<p style="text-align: center;"><b>An electric shock or personal injury may occur</b></p> <ul style="list-style-type: none"><li>• Do not use a damaged power cord or plug, or a loose power socket.</li><li>• Do not touch the power plug with wet hands.</li><li>• Do not allow liquids to come into contact with the unit or power supply.</li></ul>

	<b>CAUTION</b>
	<p style="text-align: center;"><b>Damage to your product may occur</b></p> <ul style="list-style-type: none"><li>• Do not short circuit the Power Supply Unit (PSU) supplied with your product.</li><li>• Do not disconnect the power cord while the product is being used.</li><li>• Do not bend or pull the power cord with excessive force.</li><li>• Do not use a power supply that exceeds the power supply specifications within this manual</li></ul>

### 3.6. Storage and Installation

This section describes safety precautions you must follow when installing and storing your MC14-2.4A.

	 <b>CAUTION</b>
	<p style="text-align: center;"><b>An electric shock or personal injury may occur</b></p> <ul style="list-style-type: none"> <li>• Do not place the power cord near heat sources.</li> <li>• Connect the plug to an earthed socket.</li> </ul>

	<b>CAUTION</b>
	<p style="text-align: center;"><b>Damage to your Cambrionix product may occur</b></p> <ul style="list-style-type: none"> <li>• Operate the product only in an environment where the ambient temperature is inside the operating temperature range.</li> <li>• Operate the product only in an environment where the relative humidity is inside the operating range.</li> <li>• Be careful not to leave the power cord underneath a heavy object.</li> </ul>

	 <b>CAUTION</b>
	<p style="text-align: center;"><b>Overheated power sockets may cause a fire</b></p> <ul style="list-style-type: none"> <li>• Do not overload the power socket that your hub is connected to.</li> <li>• Insert the power plug all the way into the socket so that it is not loose.</li> </ul>

## 4. Getting Started

This manual provides a reference for end-users installing for the first time and using their hub after that. As well as a guide for product safety-related information.

The MC14-2.4A is intended to be used in an indoor static environment in which the environment falls within the tested specifications to provide charge, sync and management functionality. Please see the physical specifications section of this manual for information on the environment specifications.

### 4.1. Opening your product

When you have received your product, please check the packing slip to ensure all contents and quantities are correct before opening. This is to avoid retesting and repackaging any items that are not required.

When opening the packaging, use a suitable method to open the box i.e, do not use a knife. This is to ensure the product is not damaged.

<b>⚠ CAUTION</b>
<b>Personal Injury and Damage to the product</b>
<ul style="list-style-type: none"> <li>• There will be a sticker on the hub advising you to read the User manual before use. This will need to be removed before use as it may be covering host ports, vents etc.</li> </ul>

### 4.2. What's Included

- MC14-2.4A Hub
- 2m Mains power cable (Country specified on order including fuse for the UK plugs)
- Power Supply Unit

Part description	Part number
Power Supply Unit	200421
UK Power cable	200144
US Power cable	200327
EU Power cable	200329
AUS Power cable	200337
IND Power cable	200341

### 4.3. Connecting to the mains

Connect the Power Supply Unit (PSU) to the hub using the 4-pin DIN plug. Connect the power cable to the PSU. Making sure you adhere to local safety regulations, connect the power cable to the 100 – 250 VAC mains power outlet and switch the hub on using the small power switch located adjacent to the power input connector on the hub. When the device is switched on, a red LED next to the power input will be illuminated. The hub is now ready to charge attached devices.

Periodic inspections should be made to power supply cables and any USB cables for any signs of damage. If any damage is found, replace the damaged cord before further use.

Please note that USB specifications require a minimum 100 mA charge current to be delivered during data transfer. As indicated in above, if the attached device has a BC1.2 compliant CDP port, the device can draw up to 2.4A while transferring data.

### 4.4. Charging

Your MC14-2.4A will allow your device to charge at the maximum rate possible up to 2.4A. The way that charging takes place is the MC14-2.4A will provide the device with a capability to charge and the devices USB charging controller will determine the maximum amount of charge it wants to draw down.

Although a maximum charge rate of 2.4A is possible, the device itself detrimes the exact rate and as such you may not see the maximum amount of charging on every device type that is connected.

### 4.5. Cables

Some USB cables are data transfer only, and some are power delivery only. There are also options that can handle both tasks. Be sure to verify a cable's abilities before purchasing it and select a cable which can handle the speeds and power transfer that you require. We would advice using the cable that was provided with the device to connect to our hubs.

### 4.6. Registration

You may register your product at [www.cambrionix.com/product-registration](http://www.cambrionix.com/product-registration)

### 4.7. Help and Support

FAQs and help can be found on the Help page here

- [www.cambrionix.com/help\\_pages/help](http://www.cambrionix.com/help_pages/help).

You can raise a support ticket for more in depth support here

- <https://cambrionix.atlassian.net/servicedesk/customer/portals>

You can also download any of our manuals and keep up to date at the link here

- [www.cambrionix.com/product-user-manuals](http://www.cambrionix.com/product-user-manuals)

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 the product in question faster, and speed up the process.

## 4.8. Cleaning your MC14-2.4A

Cleaning the product is generally not required, although in some instances it may be necessary if excess dirt/ dust/ hair has accumulated, or if minor liquid spillages have occurred on the module during operation or storage.

	 <b>CAUTION</b>
	<p><b>Electric shock or personal injury may occur</b></p> <ul style="list-style-type: none"> <li>• If there is a dirt/ spillage over a ventilation slot, external data/ power connector or product aperture, please remove power from the unit without touching the liquid and contact Cambrionix immediately</li> </ul>

- Ensure that the product is switched off and the power cord is removed from the product. Hold the power cable by the plug and do not touch either the plug or the power cord with wet or damp hands as an electrical shock may result
- Wipe the product with a clean, dry and soft cloth. Do not use detergents which contain alcohol, solvent or surface-active agents. Do not spray water or detergent directly onto the product
- Wet a soft and dry cloth in water and wring thoroughly to clean the product as required
- Dry the product thoroughly once the cleaning has finished
- Reconnect the power cord and use your product as advised once cleaning and drying is complete

## 5. Product Specifications

The MC14-2.4A is manufactured in the UK

### 5.1. Input Power Requirements

Input Voltage	12Vdc
Input Current	15A
Input Connection	4-pin DIN

### 5.2. Output Power

Output Voltage	5.0V +/-5%
Output Current (Max per Port)	2.4A
Output Power (Max per Port)	12W
Output Power (Total)	174.72W

### 5.3. Error flag rail values

### 5.4. Physical specifications

Input Connectors	N/A
Output Connectors	14 USB 2.0 Type-A
Maximum Downstream Data Speed per Port	
Ambient Operating Temperature range	0-35 °C
Relative humidity	5% to 95% non-condensing
Dimensions	198.3 x 73 x 40mm
Weight (kg)	1.6

### 5.5. Packaged information

Boxed Dimensions	0.47 x 0.12 x 0.31 m
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### 5.6. Consumables and Placing Orders

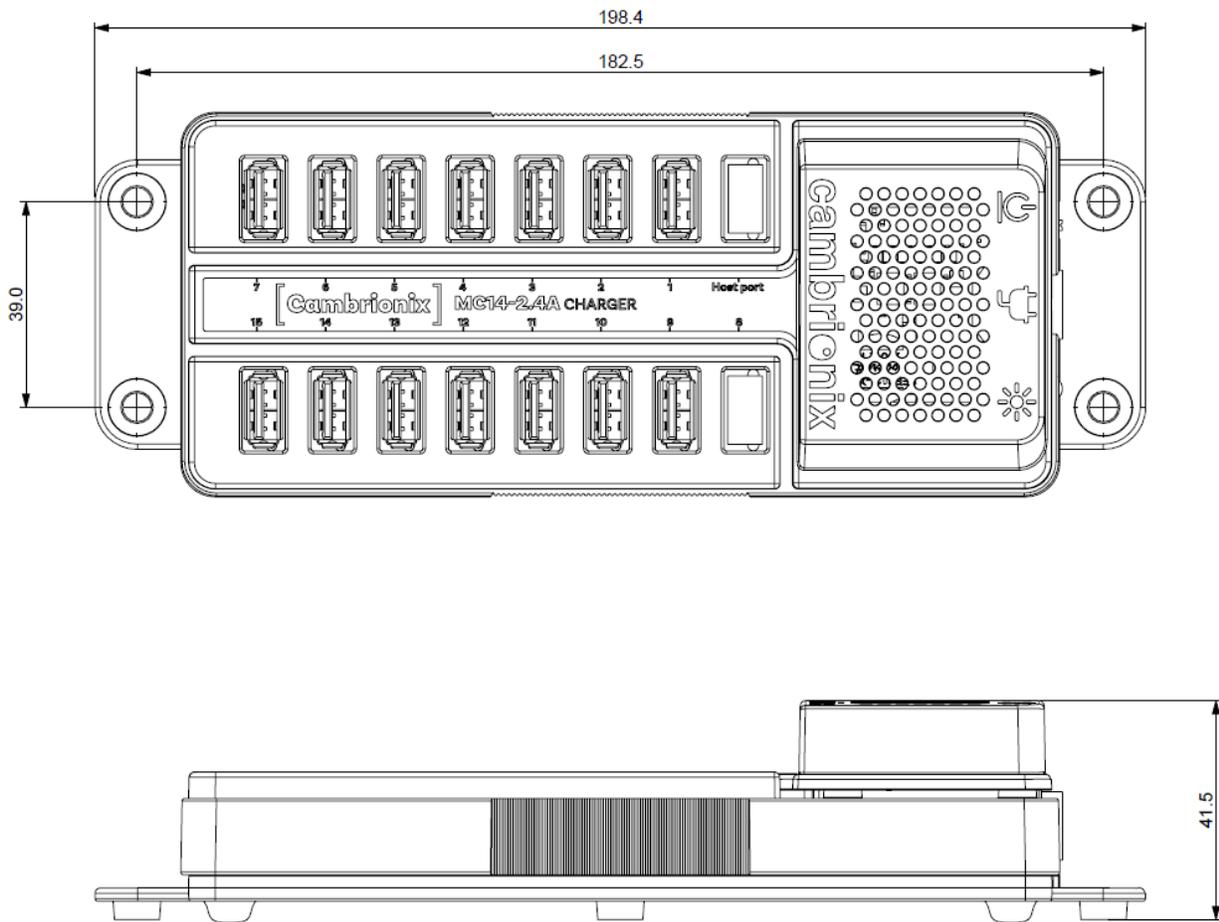
Below is a list of any Consumable products you may require for your MC14-2.4A including the cables you will require to connect devices to the hub.

Cables	14 USB 2.0 Type-A
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If you require any spare parts, such as the power cables or cable, these can be ordered by quoting the product part number and the spare part number (available from what's included section)

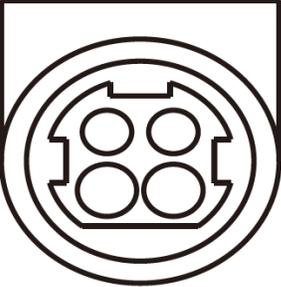
These can be ordered from the reseller or solution partner you purchased your MC14-2.4A from, or from Cambrionix directly.

To find one of our partners local to you please visit [www.cambrionix.com/partners](http://www.cambrionix.com/partners) where you can learn about the local vendors and distributors that can assist you and find their contact information.



## 5.7. Power Supply

Input Voltage	100-240VAC
Input Current	4A @ 115VAC
	2A @ 230VAC
Input Frequency	50-60Hz
Input Connector	C14
Output Voltage	12V
Output Current	15A
Output Power (Max)	180W
Output Connector	4-pin DIN
Dimensions	210 x 85 x 46mm

 <p>1 2 3 4</p>	<b>Pin</b>	<b>Function</b>
	1	+V
	2	+V
	3	-V
	4	-V

\*-V is connected to AC input ground.

## 6. Troubleshooting

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If you experience any issues with your MC14-2.4A; please try the following solutions, if your issue is not addressed in this section, please get in touch with your local vendor or Cambrionix.

### 6.1. Initial troubleshooting tips

Some tips and information to check first.

- If you plug a device (phone, USB stick) into the hub, does it appear to the OS.
- If you directly connect the same device to the port the hub is in, does it appear to the OS.
- Try switching updaters cables with one which is working/ use cable in a hub that is working.

### 6.2. Logging through LiveViewer

If you are experiencing a bug or an issue, we may ask you to obtain some logs of the behaviour, to see in more detail what is happening. To get logs of the behaviour use the following steps to get a zip file of the logs.

1. Open LiveViewer (if this is not already downloaded, then go onto our website and download both the API and LiveViewer) [www.cambrionix.com/software](http://www.cambrionix.com/software)
2. Once in LiveViewer, on the left-hand side of the screen, select the settings section.
3. Once in the settings section, select the API tab.
4. In the API section click the "cog" on the right hand side of the local API
5. Click the "select all" tick box and then the save button.
6. After this is enabled, use the hub in a way that causes the issue you are seeing.
7. Wait for the issue to occur, i.e. when updating an iPad the device disconnects.
8. Make a note of the time that the issue occurs then go back to the API page in LiveViewer, and press the zip logs.
9. Once you have the logs un-tick the "select all" box and save your settings.
10. Send the logs to us for us to take a look at.

The API keeps a maximum of 20 logs at 256Mb each, so the latest one is usually smaller. If a crash occurs, you would see a smaller log file and the next instance of API shuffles the existing ones

### 6.3. Hardware Failure

If the Hardware fails the LEDs can flash in a pattern to determine the type of failure. The power LED will flash the pattern if no LEDs are present on the downstream ports.

The unit will blink four times, followed by eight long or short flashes, which then repeat. The flashes are a number in binary which match a number in our error code list.

i.e if the LED flashes the following - BBBB SLSSSLSS, the binary number is 01000100.

## 6.4. Device connection.

If you are having device connection issues please read through the following common solutions to see if this resolves your observed behaviour.

### Device issues when updating

We have found that during updates on some devices the connection can be dropped or lost on the device, this is due to devices going in and out of the bootloader and requiring different power levels. Disabling CDP has resolved this issue for our customers.

You can disable CDP through NVRAM settings either by going through the advanced settings and turning "Sync charge" off or through the API and disabling it via code. For example, the instructions would be below using the command line.

```
settings_unlock  
settings_set sync_chrg 0000000000000000
```

### Unstable device connection

Some devices can have unstable connections with your host system through the MC14-2.4A. We have only observed this behaviour in a very few amount of devices, disabling CDP this has resolved all issues and the connections are stable.

You can disable CDP through NVRAM settings either by going through the advanced settings and turning "Sync charge" off or through the API and disabling it via code. For example, using the command line, the instructions would be as below.

```
settings_unlock  
settings_set sync_chrg 0000000000000000
```

## Battery information for Android

If you are having issue displaying battery information on Android devices ensure firstly you have ADB tool installed and open then try these things in order.

1. Check that developer options are enabled on the android device, and then that USB debugging is also enabled.
2. If you have done this step and it still does not work, go to Developer Options and click 'Revoke USB debugging authorisations'. Unplug the cable and reconnect.
3. If this still doesn't work, turn off the developer options at the top, re-enable it, and re-enable 'USB Debugging'.
4. You can get detailed info directly from ADB at each step to diagnose things:

```
adb.exe shell dumpsys battery # use -s serial_number as first options  
if you have more than 1 android attached
```

## Unknown devices

Sometimes, within Liveviewer and device manager, the connected device may show up as an unknown device.

This can be due to the host system needing to be trusted on the device. This can be done on the device itself on the initial connection.

This could also be due to an insufficient number of endpoints available on the USB controller in the host system. This limitation within the USB controller can only be resolved if you connect fewer USB devices to the controller in question.

For Apple devices there is a setting called "USB accessories" which can be activated, Once activated it will reduce the amount of times a device will need to be unlocked/ trusted. More information can be found at the link [here](#).

## Cannot connect any more devices

Sometimes, you may reach the endpoint limit of your USB controller and this may stop you from being able to attach any more devices to your host system.

You can create more space is to change connections from USB3 to USB2. You can change the connection by disabling USB3 in the BIOS on startup.

A much simpler way is to use USB2 cables instead of USB3 cables, limiting the connection to USB2.

## 6.5. Hub connection issues

If you have issues with the hub and connecting to your host system, please see below troubleshooting solutions.

### Hub not connecting to host

If you see that the MC14-2.4A is not connecting to the host system, one of the issues may be caused by the USB drivers on your host system not being up to date. It is good practice to ensure you have the latest drivers and updates installed on your host system, which is usually handled by the OS, but sometimes may require an update directly from the USB host controllers manufacturer, which will be found on their website.

USB drivers required are FTDI drivers, which can be found on the site <https://ftdichip.com/drivers/>.

### Daisy chaining multiple PDSync-C4 using expansion port

USB C cables can have variations in speed, power, and protocol capabilities. Some “active” or E-mark type-C cables may not work on the daisy chain when connecting the expansion port to another PDysnc-4. We recommend to use “passive” type-C cables and not to use cables fitted with e-markers, see your cable supplier to see if e-markers are fitted.

### Cannot access COM port

You may get an error message stating "COM (and then a number) could not be opened (Access is denied)".

This is because an application has control over the COM port that the hub is connected to, and no subsequent application can access the hub. To resolve this, you will need to close any applications that control the COM port before opening another.

## 6.6. No GUI

If you are using a headless system with no GUI, then and you require to enable logging for support issues, you can use the following command to create the logging cfg file manually:

```
echo  
    *=debug>/etc/opt/cambrionix/cambrionix.log.cfg
```

Then after re-producing the problem, you can zip the logs from the folder

```
/var/log/cambrionix
```

You may delete the file below when you are finished with it.

```
/etc/opt/cambrionix/cambrionix.log.cfg
```

## 6.7. Software troubleshooting

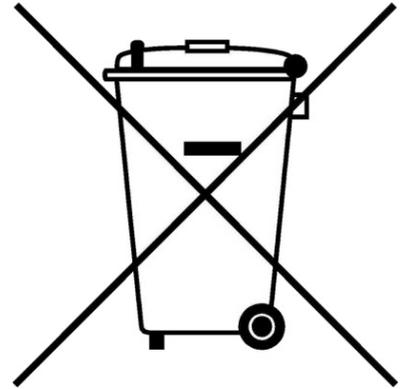
Some users have noted that the API can cause a high level of CPU usage. This can sometimes be linked to the API recorder service. If you are finding this and you are not using it then we would recommend to uninstall it from your system entirely.

## 7. Disposal

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Disposal of Old Electrical & Electrical Equipment (Applicable in the European Union and other European countries with separate collection systems)

This product is subject to Directive 2012/19/EU of the European Parliament and the Council of the European Union on the waste electrical and electronic equipment (WEEE), and in jurisdictions adopting that Directive, is marked as being put on the market after August 12, 2005, and should not be disposed of as unsorted municipal waste. Please utilize your local WEEE collection facilities in the disposition of this product and otherwise observe all applicable requirements.



Cambrionix PRN (Producer Registration Number) For the UK is "WEE/BH191TT".

## 8. Returns and Damaged Products

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If you wish to return or fix a damaged product first look at the terms on our website [www.cambrionix.com/terms-conditions](http://www.cambrionix.com/terms-conditions)

Before a product is returned please contact support using the methods detailed in the [Help and Support](#) section.

### 8.1. What do I do if my order arrives and something the product is faulty or is physically damaged?

- If you have received your order in a damaged box and/or the product has physical damage please contact Cambrionix Customer Support. Please provide photos of the damaged box and/or product when contacting Customer support.
- If an item in your order does not have physical damage but is not functioning properly or will not power on, please contact Customer Support and provide as much information as possible and including any steps followed to troubleshoot internally.
- Please include photos of the damaged box and product when contacting Customer Support.

Note: If you have received your order in a damaged box and the damage was indicated to the courier, please provide us with a copy of the delivery note detailing this.

### 8.2. What happens after I have requested a Return?

- If you have not purchased the Product(s) direct from Cambrionix please contact the vendor the item was originally purchased from for their returns process.
- Once you have notified Cambrionix of your return, Cambrionix will arrange for the collection of the product(s), or provide instructions and details for you to return the product direct.
- When returning your product(s), please only send back the items that were advised through the support process.
- Return your product(s) in the original packaging where you can. Where original packaging is not available, use suitable packing methods, which will ensure that the product cannot be subject to impact damage. i.e. double-walled cardboard box with 50mm of soft material.
- Product(s) not returned in their original condition may result in additional costs, please refer to the warranty and terms section on our website.
- Where Cambrionix arranges collection, return shipping will be free, unless Cambrionix notified you otherwise.
- When contacting us about returning a product please provide the following information.
  - Collection Address
  - Weights and dimensions of shipment
  - Preferred collection date and time.
  - Product serial number
  - Purchase order number

## 9. Compliance and Standards

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- CB Certificate
- CE Tested and marked
- FCC Part 15 Tested and marked
- RoHS Compliant
- Independently safety tested by the Underwriters Laboratory (UL) under file #E346549
- Complies with EN60950 safety requirements for IT equipment

Cambrionix Ltd  
The Maurice Wilkes Building  
Cowley Road  
Cambridge CB4 0DS  
United Kingdom

+44 (0) 1223 755 520  
[enquiries@cambrionix.com](mailto:enquiries@cambrionix.com)  
[www.cambrionix.com](http://www.cambrionix.com)

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with the company number 06210854