

PowerPad-15C

User Manual



*Please note this product has been discontinued

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2. Introduction

The PowerPad-15C has been designed primarily for desktop use, being highly compact and quiet. It provides 10W of charging power to each of its 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 PowerPad-15C 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 2.1A). The firmware can be updated to enable new charging profiles to be added, ensuring the PowerPad-15C can charge the latest devices. It is ready to charge out-of-the-box.


You can download the latest version of this manual and all product user manuals from our website at the following link. www.cambrionix.com/product-user-manuals

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 the IEC/ICEE 82079-1 standard. This is to facilitate the easier understanding and location of information relating to the PowerPad-15C. Any errors or omissions can be reported using our support ticket system (see [Help and Support](#)). This way, any issues that are discovered can be acted on quickly and we can update the documentation to reflect this.

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.

	⚠ CAUTION
	<p style="text-align: center; color: blue;">Personal Injury and Damage to the product</p> <p style="text-align: center;">Always observe the safety instructions in this user manual</p>


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.

⚠ CAUTION
<p style="text-align: center;">Indicates a potentially hazardous situation that, if not avoided, may result in moderate or minor (reversible) injury.</p>



CAUTION
<p style="text-align: center;">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

	<p>Use of the safety alert symbol indicates a risk of injury.</p> <p>Observe all measures that are marked with the safety alert symbol in order to avoid injury</p>
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3.3. Pictograms




These symbols will be used throughout this documentation to alert to any potential dangers or any actions that must be taken.

Warning Signs	
 <p>Electrical hazard</p>	 <p>Fire Hazard</p>

Mandatory action signs	
 <p>Read operating instructions</p>	 <p>Mandatory regulation</p>


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.

	<div data-bbox="772 241 1000 286">⚠ CAUTION</div> <p data-bbox="507 338 1275 383">An electric shock or personal injury may occur</p> <p data-bbox="676 425 1184 459">Do not modify the product in any way.</p> <p data-bbox="730 486 1129 519">Do not dismantle the product.</p> <p data-bbox="766 544 1094 577">Do not open the product</p>
	<div data-bbox="772 669 1000 714">⚠ CAUTION</div> <p data-bbox="614 766 1166 810">Fire, or personal injury may occur</p> <p data-bbox="655 853 1198 887">Do not obstruct air vents on the product.</p> <p data-bbox="510 911 1343 945">Do not cover the product in or place near combustible material.</p>
	<div data-bbox="798 1037 979 1081">CAUTION</div> <p data-bbox="592 1133 1189 1178">Damage to your product may occur</p> <p data-bbox="601 1220 1259 1254">Do not bend or compress any part of the product.</p>

3.5. Power supply


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


	⚠ CAUTION
	<p style="text-align: center; color: blue;">An electric shock or personal injury may occur</p> <p>Do not use a damaged power cord or plug, or a loose power socket.</p> <p style="text-align: center;">Do not touch the power plug with wet hands.</p> <p>Do not allow liquids to come into contact with the unit or power supply.</p>


	CAUTION
	<p style="text-align: center; color: blue;">Damage to your product may occur</p> <p>Do not short circuit the Power Supply Unit (PSU) supplied with your product.</p> <p>Do not disconnect the power cord while the product is being used.</p> <p style="text-align: center;">Do not bend or pull the power cord with excessive force.</p> <p style="text-align: center;">Do not use a power supply that exceeds the power supply specifications within this manual</p>


3.6. Storage and Installation

This section describes safety precautions you must follow when installing and storing your PowerPad-15C.

	⚠ CAUTION
	<p style="text-align: center; color: blue;">An electric shock or personal injury may occur</p> <p style="text-align: center;">Do not place the power cord near heat sources.</p> <p style="text-align: center;">Connect the plug only to an earthed socket.</p>


	CAUTION
	<p>Damage to your Cambrionix product may occur</p> <p>Operate the product only in an environment where the ambient temperature is inside the operating temperature range.</p> <p>Operate the product only in an environment where the relative humidity is inside the operating range.</p> <p>Be careful not to leave the power cord underneath a heavy object.</p>

	⚠ CAUTION
	<p>Overheated power sockets may cause a fire</p> <p>Do not overload the power socket that your hub is connected to.</p> <p>Insert the power plug all the way into the socket so that it is not loose.</p>

	CAUTION
	<p>Overloading the brackets may cause failure</p> <p>The rack brackets for all our products are not designed to be used in a mobile application, bracket failure could occur if the units are not supported fully e.g Shock during road transport.</p>

3.7. Cleaning your PowerPad-15C

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.

	⚠ CAUTION
	<p style="text-align: center; color: blue;">Electric shock or personal injury may occur</p> <p>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 seek advise before reapplying power</p>

- 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
- Mildly dampen 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 is complete

4. Getting Started


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

The PowerPad-15C 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 [Product Specifications](#) section of this manual for information on the environment specifications.

4.1. Unpacking your product

When you have received your product, please check the packing slip inside the box 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.

	⚠ CAUTION
	<p>Personal Injury and Damage to the product</p> <p>There will be a label 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.</p>

4.2. What's Included

- PowerPad-15C Hub
- 2m Mains power cable (Country specified on order including fuse for the UK plugs)
- Power Supply Unit

4.3. Consumables and Placing Orders

If you require any spare parts, such as cables, these can be ordered by quoting the product part number listed in the [Product Specifications](#).

These can be ordered from the reseller or solution partner you purchased your PowerPad-15C from, or from Cambrionix directly.

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

4.4. Connecting to the mains

Connect the Power Supply Unit (PSU) to the hub using the 4-Pin Mini-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 LED next to the power input will be illuminated. The hub is now ready to charge attached devices.

Please note that USB specifications require a minimum 100 mA charge current to be available during data transfer. As indicated in above, if the attached device has a BC1.2 compliant CDP port, the device can draw up to 2.1A whilst transferring data.

4.5. Connecting devices to your PowerPad-15C

Throughout this manual we will refer to "devices" this relates to the device you are connecting to the PowerPad-15C this could be any USB device such as a phone, tablet, USB drive or any other USB connected device.

Once you have your hub setup the next thing is to connect your devices to start using the PowerPad-15C. We would always recommend using the OEM cable supplied by the manufacturer of the device, so whatever cable is provided with the device use that cable to connect to the hub.

If your device has a USB plug (male connector) on it already then you can connect the device directly into the hub.

If the cable (or plug fitted to device) is not the same USB type as the socket (female connectors) on the PowerPad-15C then you will require an adaptor or a different cable.

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.

4.6. Charging

Your PowerPad-15C will allow your device to charge at the maximum rate possible up to 2.1A. The way that charging takes place is the PowerPad-15C 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 2.1A is possible, the device itself determines the exact rate and as such you may not see the maximum amount of charging on every device type that is connected.

4.7. Registration

You may register your product at www.cambrionix.com/product-registration

4.8. Help and Support

FAQs and help can be found on the Help page here

- https://www.cambrionix.com/help_pages/help.

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

- <https://support.cambrionix.com>

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

- 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 your specific product and speed up the process.

5. Using your Cambrionix Hub

This section provides guidance on using your hub effectively, either in charge-only or sync-and-charge applications. You will also find detailed information on managing your hub, adjusting port modes, connecting multiple hubs to a single host, and utilising Cambrionix Software for enhanced functionality.

5.0.1 Fan Behaviour

Your PowerPad-15C has an inbuilt fan used to cool the product when internal temperatures rise above a set threshold. On power up the fan will spin for approximately a second before turning off. For more information on the temperatures that trigger the fan please see the fan properties section in the [Hub Specifications](#).

When looking into the specifications you will see five different temperatures relating to fan speed and temperatures some information on how this relates to your product please see below table:

Start Temperature (°C)	The Temperature at which the fan will initially turn on
50% Speed Start Temperature (°C)	The Temperature at which the fan will increase to 50% speed
Max Airflow Temperature (°C)	The Temperature at which the fan will increase to 100% speed
Drop to 50% Speed Temperature (°C)	The Temperature at which the fan will decrease to 50% speed
Stop Temperature (°C)	The Temperature at which the fan will turn off

With the PowerPad-15C there is also an internal power supply which has its own fan which will continuously be active with a very low sound level (less than 47db at full load)

5.1. Using Without Connecting to a Host

When the hub is powered on and not connected to a local host computer, it automatically switches to charging mode using its intelligent charging algorithm. Simply connect your devices to any available port (excluding the Host Port) using USB-compliant cables to begin charging.

Once the devices are connected, the algorithm will detect the highest charge rate allowable for each attached device. Charging at the optimum rate (up to 2.1A) specified by the manufacturer will commence once profiling is complete. Depending on the state of charge of the device attached, this may take tens of seconds.

During profiling, the LEDs will flash red. Charging at the optimum rate specified by the manufacturer will commence once profiling is complete. At this point, the red LEDs will be constantly illuminated. Depending on the state of charge of the device attached, profiling may take tens of seconds. Once the device is nearly fully charged, and the current draw falls below a set limit for a given period, the green LEDs will be illuminated.

6. Product Specifications

6.1. Features

PP15C Features	
19-inch Rack Mountable	no
Dedicated control port	no
Fan Assisted Cooling	yes
Selective upstream port	no
Internal Temperature Monitoring	yes
Indicator LED	no
User Replaceable Fuse	no
Internal Battery	no

Table 6-1

USB Downstream Port Features	
Configurable enumeration delay	no
USB BC 1.2 Support	yes
USB Type-C Rev 1.3 Support	no
USB Power Delivery 2.0 Support	no
USB Power Delivery 3.0 Support	no
Independent Hi-Speed Enable and Disable	no
Independent SuperSpeed Enable and Disable	no
Individual Enable and Disable	no
Individual port voltage measurement, Vbus	no
Individual port current measurement, Vbus	yes
Individual CC voltage measurement, Vconn	no
Individual CC current measurement, Vconn	no
Link speed detection	no
Programmable port current limits	no
RGB Indicator LEDs	no
Individual Colour Indicator LEDs	no

Table 6-2

6.2. Hub Specifications

PP15C Properties					
Colour	Nom	White	Number of USB Upstream Ports	Nom	-
Control Port Connector Type	Nom	-	Number of USB Upstream Ports	Nom	-
Dimensions Depth (mm)	Nom	73	Number of USB2 Type-A Downstream Ports	Nom	-
Dimensions Height (mm)	Nom	42	Number of USB2 Type-A Expansion Ports	Nom	-
Dimensions Width (mm)	Nom	199	Number of USB2 Type-A Upstream Ports	Nom	1
Downstream Connector Type	Nom	Type-A	Number of USB2 Type-B Upstream Ports	Nom	-
Electrostatic Discharge, air (kV)	Max	-	Number of USB2 Type-C Downstream Ports	Nom	-
Electrostatic Discharge, Vesd (kV)	Max	-	Number of USB2 Type-C Expansion Ports	Nom	-
Enclosure Material	Nom	Plastic	Number of USB2 Type-C Upstream Ports	Nom	-
Expansion Connector Type	Nom	-	Number of USB3 Type-A Downstream Ports	Nom	-
Form Factor	Nom	Desktop	Number of USB3 Type-A Expansion Ports	Nom	-

PP15C Properties					
Fuse Type	Nom	-	Number of USB3 Type-A Upstream Ports	Nom	-
Host Connector Type	Nom	Type-A	Number of USB3 Type-C Upstream Ports	Nom	-
Manufacturing Origin	Nom	UK	Output Power, Max (W)	Max	163.8
Mass (kg)	Nom	1.5	Part Number	Nom	200285
Model Number	Nom	PP15C	Power Efficiency at maximum load (%)	Min	-
Number of Thunderbolt 3 Expansion Ports	Nom	-		Nom	-
Number of Thunderbolt 3 Upstream Ports	Nom	-		Max	-
Number of USB Control Ports	Nom	-	Power Type	Nom	DC
Number of USB Downstream Ports	Nom	15	Product Name	Nom	PowerPad-15C
Number of USB Expansion Ports	Nom	-	Vbus Source Power (W)	Max	163.8

Table 6-3

PP15C Environmental Properties		
Ambient Operating Temperature (°C)	Min	0
	Max	35
Relative Humidity Range (%)	Min	20
	Max	80
Storage Relative Humidity Range (%)	Min	5
	Max	95
Storage Temperature (°C)	Min	-20
	Max	60
Operating Altitude Max (m)	Max	2000

Table 6-4

Fan Properties		
Airflow (m3/hr)	Min	-
	Nom	11.9
	Max	-
Acoustic Noise (dB A)	Min	-
	Nom	20.6
	Max	-
Start Temperature (°C)	Nom	55
50% Speed Start Temperature (°C)	Nom	-
Max Airflow Temperature (°C)	Nom	65
Drop to 50% Speed Temperature (°C)	Nom	-
Drop to Minimum Fan Speed Temperature (°C)	Nom	-
Stop Temperature (°C)	Nom	-
Minimum Fan Speed (%)	Nom	-
Fan Diameter (mm)	Nom	-

Table 6-5

Boxed Properties		
Dimensions, Depth (cm)	Nom	10
Dimensions, Height (cm)	Nom	16
Dimensions, Width (cm)	Nom	28
Mass (kg)	Nom	1.7

Table 6-6

Power LED Properties		
Colour	Nom	Red
Diameter (mm)	Nom	4.8
LED Wavelength, Red (nm)	Min	-
	Nom	626
	Max	-
Luminous Intensity (mcd)	Nom	2.3

Table 6-7

6.3. Power Specifications

PP15C Power Input Properties		
Connector Type	Nom	4-Pin Mini-DIN
Voltage, Vsupply (V)	Min	-
	Nom	12
	Max	-
Voltage Measurement Rate (Hz)	Nom	-
Voltage Measurement Accuracy, Vsupply (%FSR)	Nom	-
Power, Psupply (W)	Min	-
	Max	-
Power, no devices attached (W)	Min	-
	Nom	-
	Max	-

Table 6-8

AC Power Input Properties		
Operating Current @ 115VAC (A)	Min	4
	Max	4
Operating Current @ 230VAC (A)	Min	2
	Max	2
Operating Voltage, Vsupply (VAC)	Min	100
	Max	240
Under Voltage Threshold (VAC)	Min	-
	Nom	-
	Max	-
Over Voltage Threshold (VAC)	Min	-
	Nom	-
	Max	-
Voltage Measurement Resolution, Vsupply (mVAC)	Nom	-
Frequency Range (Hz)	Min	2
	Max	-

Table 6-9

PP15C DC Power Input Properties		
Under Voltage (V)	Min	-
	Nom	-
	Max	-
Current, Isupply (A)	Min	-
	Max	15
Over Voltage (V)	Min	-
	Nom	-
	Max	-
Voltage Measurement Resolution, Vsupply (mV)	Nom	-

Table 6-10

PSU Properties		
Dimensions, Depth (mm)	Nom	85
Dimensions, Height (mm)	Nom	46
Dimensions, Width (mm)	Nom	210
Input Connector Type	Nom	C14
Input Power Type	Nom	AC
Output Connector Type	Nom	4-Pin Mini-DIN
Output Power Max (W)	Max	180
Output Power Type	Nom	DC
Part Number	Nom	200421
Power Efficiency, at maximum load (%)	Min	-
	Nom	-
	Max	-

Table 6-11

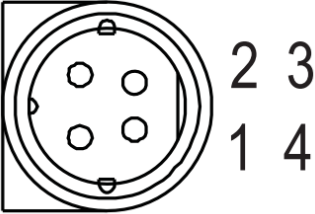
Power connection pin layout		
	Pin	Function
	1	+Vo
	2	+Vo
	3	-Vo
	4	-Vo

Table 6-12

* -V is connected to AC input ground.

** The metal ring around the internal pins is also connected to chassis ground.

6.4. Port Specifications

USB Downstream Port Properties					
Short Circuit Detection Time (ms)	Max	-	Vbus Output Current, ALT CDP Mode (A)	Max	-
Short Circuit Response Time (µs)	Max	-	Vbus Output Current, CDP Mode (A)	Max	-
USB D Logic Low Voltage (V)	Min	0	Vbus Output Current, DCP Mode (A)	Max	2.1
	Max	0.3	Vbus Output Current, SDP Mode (A)	Max	-
USB D Logic High Voltage (V)	Min	2.8	Vbus Output Power (W)	Max	10

USB Downstream Port Properties					
	Max	3.6			
USB Hi-Speed Data Rate (Mbps)	Nom	-		Vbus Output Voltage (V)	Min 4.8
USB SuperSpeed Data Rate (Gbps)	Nom	-			Nom 5
					Max 5.2
Vbus Current Measurement Accuracy (%FSR)	Min	-		Vbus Source Power (W)	Max -
	Max	-			
Vbus Current Measurement Range (A)	Min	-		Vbus Voltage Measurement Accuracy (%FSR)	Min -
	Max	-			Max -
Vbus Current Measurement Rate (Hz)	Nom	-		Vbus Voltage Measurement Range (V)	Min -
Vbus Current Measurement Resolution (mA)	Nom	-			Max -
Vbus Current Setpoint Resolution (mA)	Nom	-		Vbus Voltage Measurement Rate (Hz)	Nom -
Vbus Output Current (A)	No	2.1		Vbus Voltage Measurement Resolution (mV)	Nom -
				Vbus Voltage Ripple (mV)	Max -
				Vbus Voltage Setpoint Resolution (mV)	Nom -

Table 6-13

Table 6-14

Upstream Port Properties		
Vbus Input Current (mA)	Min	-
	Nom	-
	Max	-
Vbus Input Power (W)	Min	-
	Nom	-
	Max	-
Vbus Input Voltage (V)	Min	4.75
	Nom	5
	Max	5.25
Connection speed (Mbps)	Nom	Transfer Speed (Mbps)

Table 6-15

Ports Lifetime

Standard USB connections have a minimum rated lifetime of 1,500 cycles of insertion and removal. USB-C receptacles have a minimum rated lifetime of 10,000 cycles of insertion and removal. This is an industry-standard.

One thing you can do to prolong the lifetime of the ports on your PowerPad-15C is to use "sacrificial cables" in between the hub and your charging cables so when you repeatedly connect/ disconnect you are only going to wear the cables rather than the hub.

6.5. Drawings

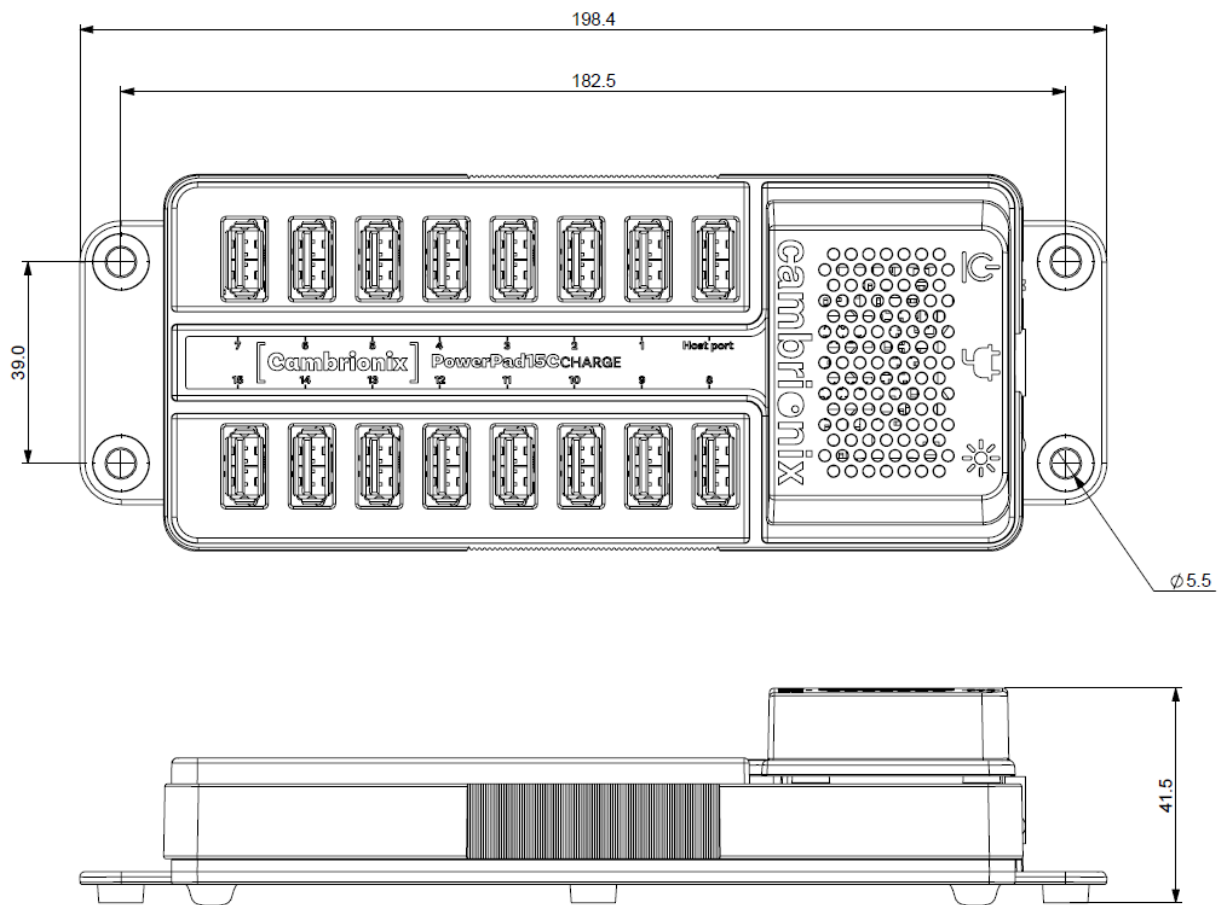


Figure 6.1

7. Troubleshooting

If you experience any issues with your PowerPad-15C ; please try the following troubleshooting steps, if the issue is not addressed in this section, please get in touch with your local vendor or Cambrionix. To contact Cambrionix Support please see [Help and Support](#).

7.1. Common troubleshooting tips

Some tips and information to check first.

- If you directly connect the same device to the port the hub is in, does it appear to the OS.
- If you plug a device (phone, USB stick) into the hub, does it appear to the OS (device manager/ system info etc.).
- Try switching the cables with ones that are working/ use cable from a hub that is working.

7.2. Logging through Cambrionix Connect

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 Cambrionix Connect (if this is not already downloaded, then go onto our website and download both the API and Cambrionix Connect)
<https://www.cambrionix.com/software>
2. Once inside, select the Computers tab.
3. Select localhost or the name of the local computer you are obtaining logs from
4. Then, click on the “Hub API”
5. From here, you should see a section titled 'API Logging Sections'. Expand the 'Advanced logging settings' downwards.
6. Click the “select all” tick box and then the save button.
7. After this is enabled, use the hub in a way that causes the issue you are seeing.
8. Wait for the issue to occur
9. Note the time and date that the issue occurs. Then, go back to the API page in Cambrionix Connect and press the zip logs.

10. Once you have the logs un-tick the “select all” box and save your settings.

11. Send the logs to us for us to take a look at

The API keeps a maximum of 20 logs at 256 Mb 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

Default locations

Log messages generated by the CambrionixApiService go to syslog.

Using Windows the logs will default to the below location

```
C:\ProgramData\Cambrionix
```

Using macOS the logs will default to the below location

```
Library>Logs>Cambrionix
```

Using Linux the logs will default to the below location

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

7.3. Hardware Failure

If the Hardware fails, the LEDs can flash in a pattern to determine the type of failure. If no LEDs are on the downstream ports, this will be the red power LED flashing in a pattern.

The unit will blink(B) four times, followed by eight long(L) or short(S) 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.

7.4. Device connection

If you are seeing any device connection issues please read through the following trouble shooting steps to see if this resolves the observed behaviour.

Device Detection

Lightning cables have the capacity to draw a small amount of current, even when no device is connected to them. This behaviour can cause a USB hub to interpret the cable as a device with

a low power draw, resulting in the hub's LEDs turning on. Additionally, in the case of a Cambrionix Connect system, this may lead to the appearance of an "unknown device" in the interface.

This current draw is a characteristic of lightning cables, as they negotiate power automatically upon connection, regardless of whether a device is attached or not. Consequently, the hub may mistakenly identify the cable itself as an active device, despite the absence of any connected peripherals.

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. In most instances disabling CDP has resolved this issue for our customers.

You can disable CDP through Internal hub 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 USB hubs. We have only observed this behaviour in a very few amount of devices, disabling CDP and setting the ports to always be on has resolved all issues and the connections are stable.

You can disable CDP through Internal hub 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
```

You can set the ports to always be on through Internal hub settings through the advanced settings and turning "Ports On" settings to always on for each port. When you set the port to always be on you will need to set a default profile on each port for when the port(s). There is a description for each profile within Cambrionix connect.

Battery information for Android

If you are observing an 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 Cambrionix Connect 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 <https://support.apple.com/en-gb/HT208857>.

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.

Port overcurrent behaviour

When a port encounters an overcurrent event, the port is shut down and an error flag (e) is applied to the port, the port stays disabled until the device is removed or the port state is reset (turned to off mode then back to charge) if the short isn't removed the port will shut down again

The error flag for the port can be seen in the state command see the example below where port 4 had overcurrent applied.

```
>>state
1, 0000, D I, 0, 0, x, 0.00
2, 0000, D I, 0, 0, x, 0.00
3, 0000, D I, 0, 0, x, 0.00
4, 0000, e D I, 0, 0, x, 0.00
5, 0927, A C, 1, 15, x, 0.00
6, 0000, D I, 0, 0, x, 0.00
7, 0000, D I, 0, 0, x, 0.00
8, 0048, A P, 2, 2, x, 0.01
```

7.5. Hub connection issues

If you there are 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 PowerPad-15C 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/>.

Cannot access the 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 other applications that are using the COM port before trying to use the COM port.

7.6. Using with a headless system

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
```

7.7. 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. Information on how to uninstall programs can be found in the [Removing Software](#) section.

Firmware Update

If you have older hardware with Firmware version number lower than 1.83 then the hub may not be compatible with the Cambrionix Hub API and will need to be updated to the latest version of Firmware using the Command Line Updater which can be downloaded and installed from the following link.

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

8. Returns and Damaged Products

If you wish to return or fix a damaged product first look at the terms on our website

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 if my order arrives with an issue?

- If you have received your order in a damaged box and/or the product has physical damage please contact Cambrionix Customer Support or your distribution partner. Please provide photos of the damaged box and/or product when contacting Customer support.
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- 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 WxDxH (m) of shipment
 - Preferred collection date and time.
 - Product serial number(s) (this can be found on a label on the rear or underside of the unit)
 - Purchase order number(s)

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

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

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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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<https://downloads.cambrionix.com/documentation/en/Cambrionix-Terms-and-Conditions.pdf>

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