COVVI
Partners in Prosthetics


# COVVI Power Supply

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# The COVVI Power Supply

## Contents

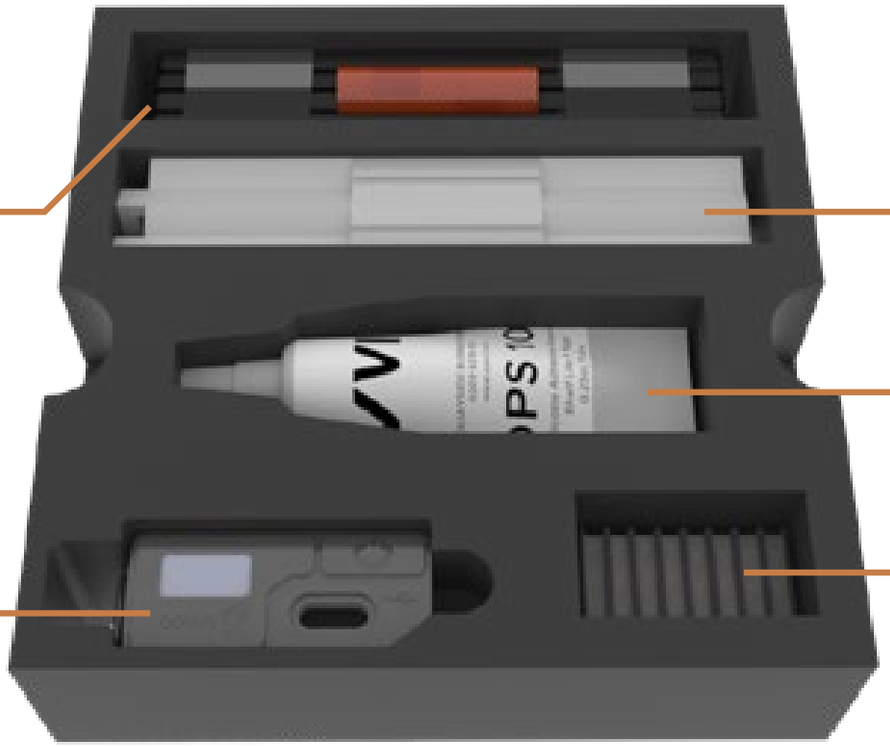
At COVVI we know that keeping prosthetic devices charged throughout the day can be a challenge, we also understand the fatigue caused by carrying large bulky battery systems all day. We feel the new COVVI Power Supply addresses a number of these issues. We have designed the system around a very compact in-arm Control Panel which includes a USB-C charge socket, on/off button, and a screen to provide accurate power levels. We have coupled this with some extremely slim batteries which fit within the socket avoiding visible lumps on the outer socket. Existing flexible battery systems on the market rely on physically bending the lithium cell, this limits the angle of flex/bend but also affects the amount of charge the battery can hold. Our batteries circumvent this issue as the construction has two solid battery sections linked with a flexible web, delivering 1600mAh.

This means the battery can be folded in half without affecting the performance. We kept the weight as low as possible, our system only uses the two batteries which connect directly to the Control Panel without the need for an internal connecter. With a system weight of 84 grams, we have market leading power density which will keep the user powered up all day, but if they do find themselves running short on power, they have the convenience of USB-C charging on the go.

For users who need more power and have the room available in their socket, we are offering a high-capacity version which is based on 2 cylindrical cells delivering 2600mAh with a system weight of 130 grams. This system is ideal for users who have a short residual limb. The low weight version of the Power Supply is 1 battery with 4 individual cells joined by a web which allows the system to follow the contours of the inside surface of the prosthetic socket. This system is ideal for users with a long residual limb.

Once fitted in a limb, the COVVI power supply is splash resistant and is tested to IP44.  If there is water in the USB-C port, please fully dry this out before attempting to charge.

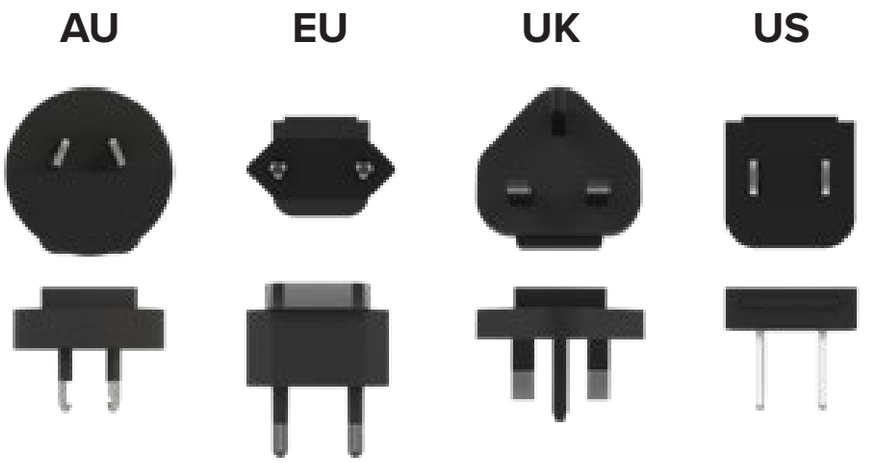
# The COVVI Power Supply




***COVPS-1600 Shown**

**Cutting Template**
(Located in the COVPS Box)

# The COVVI Power Supply


**USB-C Wall Charger**

⚠ **Only use with COVVI Batteries**

# The COVVI Power Supply

## Warnings

Please read the following safety precautions prior to fitting the COVVI Power Supply.

- The Power Supply should only be fitted by a certified prosthetist.
- This product is not designed to be disassembled or serviced. COVVI Ltd. and COVVI USA INC have the right to void the warranty of all products that have any type of modification or damage caused by any unauthorised or untrained personnel. Any damage caused by intentional harm or neglect will not be covered under the warranty.
- Please make sure the Power Supply is **OFF** before connecting/disconnecting the prosthetic device as this will avoid any unpredictable spikes in the electric current from the batteries.
- Do **NOT** attempt to use the prosthetic device while the batteries are charging. When the batteries are charging, the power will automatically turn off. If for any reason the power does not turn off while charging, using the prosthetic device can be potentially unsafe.
- Do **NOT** use the Power Supply if there is any visible sign of damage to the Power Supply charger, Power Plug and/or Cables.
- Do **NOT** expose the Power Supply to an open flame or submerge it in water. This could damage the screen and affect the battery's ability to hold charge.
- Do **NOT** use any solvents or abrasives to clean the Control Panel as this might damage the paint finish, the clarity of the screen or integrity of the silicone moulding.
- Do **NOT** fit the batteries into a small, enclosed space. The batteries are designed to inflate when they fail. Stopping this inflation may cause the generation of excessive heat, injury, or death.
- Individuals who are exposed to hazardous environments that contain flammable liquid or gas should **NOT** use the COVVI Power Supply when in those environments.
- Ensure access to wall plug to enable easy isolation if required.

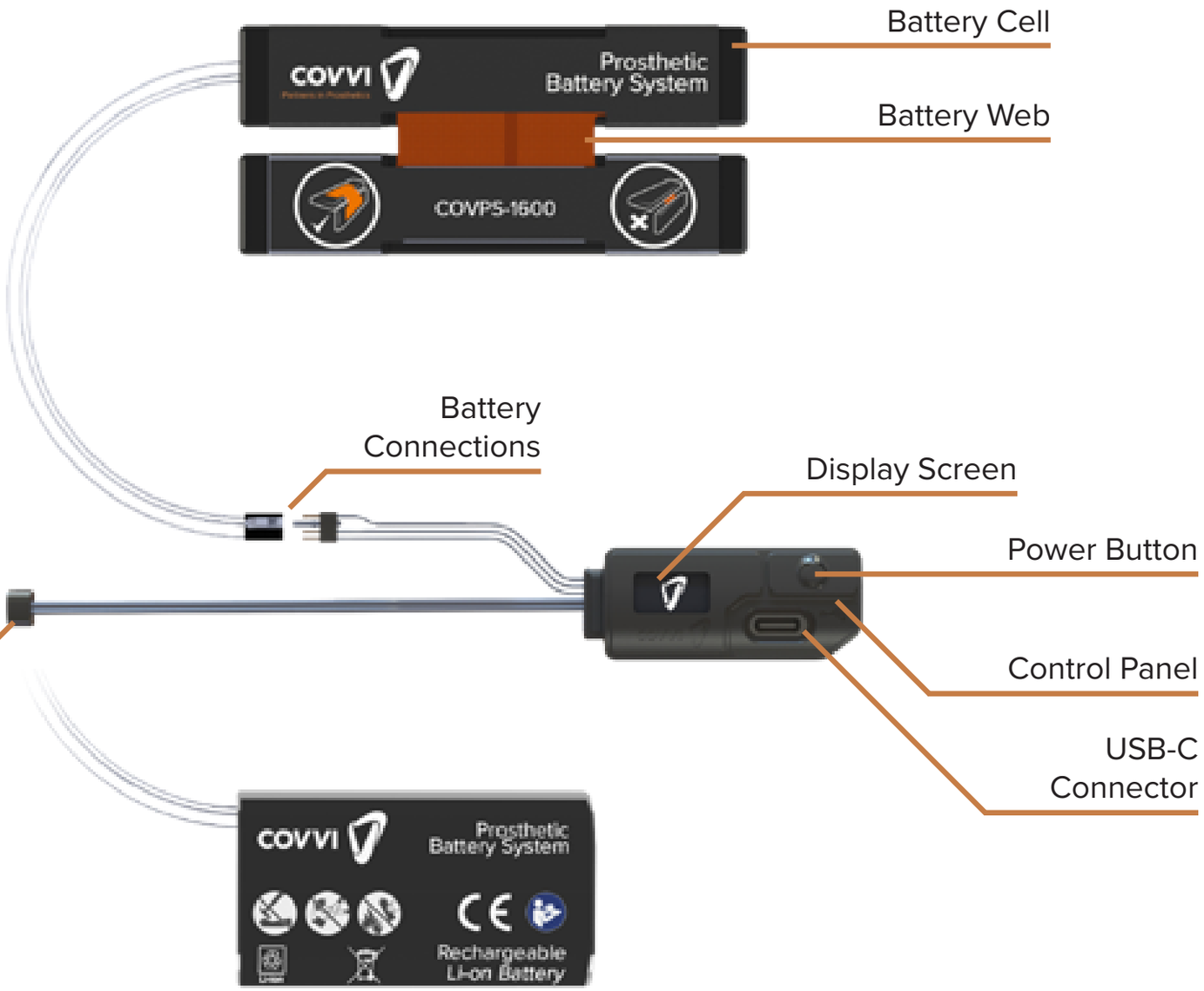

This product uses semiconductors that can be damaged by electrostatic discharge (ESD).

# The COVVI Power Supply

There are two Power Supply systems available: 2600mAh cylindrical cells with a system weight of 104 grams ideal for users with a short residual limb, and 1600mAh prismatic flat cells with a system weight of 74 grams and a web connecting the cells. This web allows the batteries to be folded, without bending the cells, to follow the contours of the inside of the prosthetic socket. This system is ideal for users with a long residual limb.

Both Power Supplies come with a Control Panel which weighs 16 grams. It has USB-C charging, the 1600mAh Power Supply takes under three hours to charge and the 2600mAh Power Supply takes four hours to charge.

**1600mAh Option**

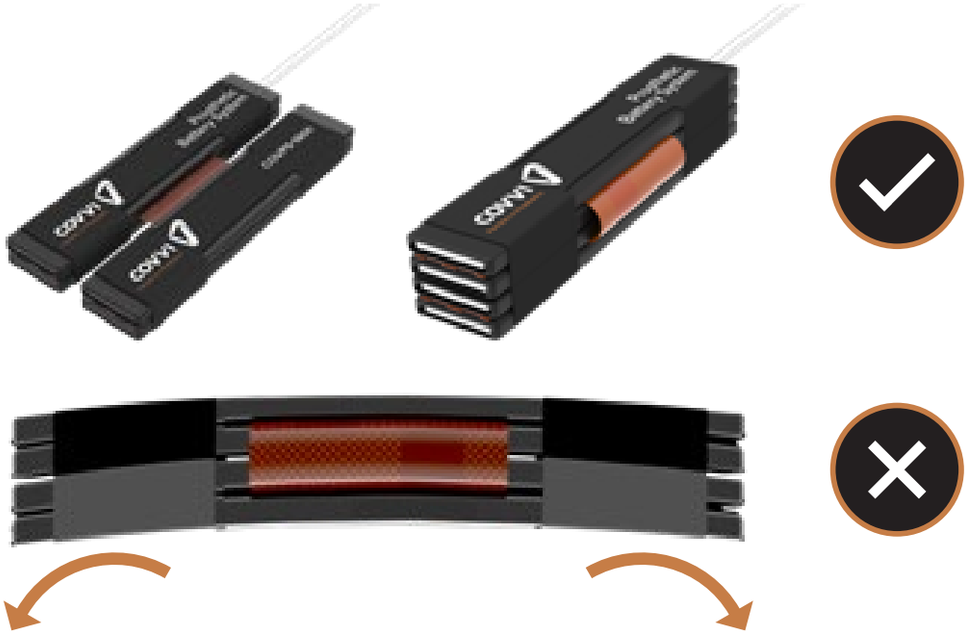



**2600mAh Option**

# The COVVI Power Supply

## The Batteries

The 1600mAh Battery is made up of four prismatic cells, that can be bent either way along the brown connecting web.



The 2600mAh Battery is made up of two cylindrical cells.

# The COVVI Power Supply

## Activating the System

Press and hold the Power Button on the Control Panel for two seconds to turn the Power Supply on. The screen will display COVVI for two seconds and then the current charge level for five seconds. The system is now providing power to the hand. To turn the Power Supply off, press and hold the Power Button for two seconds.

COVVI

System Capacity


Firmware


Calibration


Charge Level


To reduce power consumption the screen is blank. To see the charge level, press the Power Button.

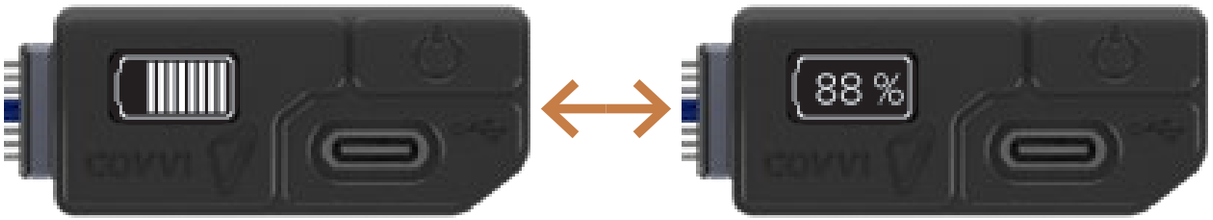
**Press to show for 5 seconds**

# The COVVI Power Supply

## Changing the Display Mode

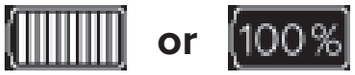
There are two display modes: bars or a percentage level. To choose the display mode, connect the USB-C Wall Charger to the Control Panel, turn it on and press and hold the Power Button until the screen starts alternating the two styles. Release the Power Button when it shows your preferred display.

**Please Note:** The screen will not turn off while the USB is plugged in.

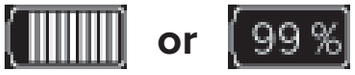


# The COVVI Power Supply

## Charge Indication




10 blocks equals 100%

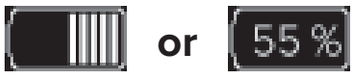



9 blocks greater than or equal to 90%


8 blocks greater than or equal to 80%

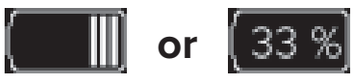

7 blocks greater than or equal to 70%


6 blocks greater than or equal to 60%



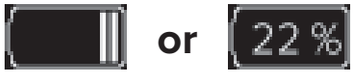

5 blocks greater than or equal to 50%


4 blocks greater than or equal to 40%




3 blocks greater than or equal to 30%

# The COVVI Power Supply




**2 blocks greater than or equal to 20%**


**1 block greater than or equal to 10%**


**No blocks less than 10%**


**When the system is charging, it will show this screen.**


If there is a fault with the Power Supply, the OLED screen will show the following warning icon. Please turn off the Power Supply and contact COVVI Customer Services.

# The COVVI Power Supply

## Fitting the COVVI Power Supply

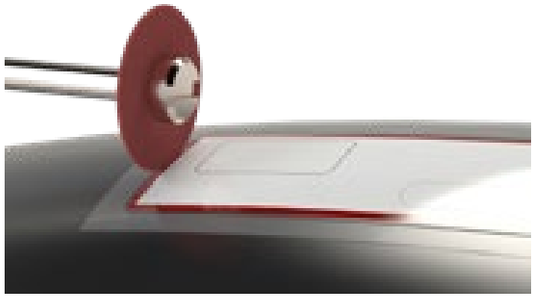
The Control Panel should only be fitted by a certified prosthetist.

The information below is to be used as a guide, individual prostheses will differ from patient to patient.

We recommend the Control Panel is placed on the upper side of the prosthetic socket away from any area which may be loadbearing when carrying heavy items. Lamination dummies are provided if recesses are required in the outer socket wall.

## Control Panel Aperture

Apply the cutting template to the top side of the prosthetic socket.



Carefully cut along the red outline with a cutting disc.

File down any sharp edges.

# The COVVI Power Supply

Remove the cutting template and apply a small bead of silicone adhesive to the edge of the aperture.

Insert the wires through the aperture before gently pressing the Control Panel into place.

The batteries can either be connected to the Control Panel prior to being fitted to the limb or after it is fitted if there is sufficient access space.

To ensure correct function it is important to inspect the Control Panel carefully and ensure that the USB-C port is free of debris. If any debris is discovered please carefully remove it with a thin, but non-metallic object to ensure the port is not damaged.

If the Control Panel needs cleaning, mild soap and a soft damp cloth should be used. Abrasive cleaners and cleaning cloths will scratch the covers.

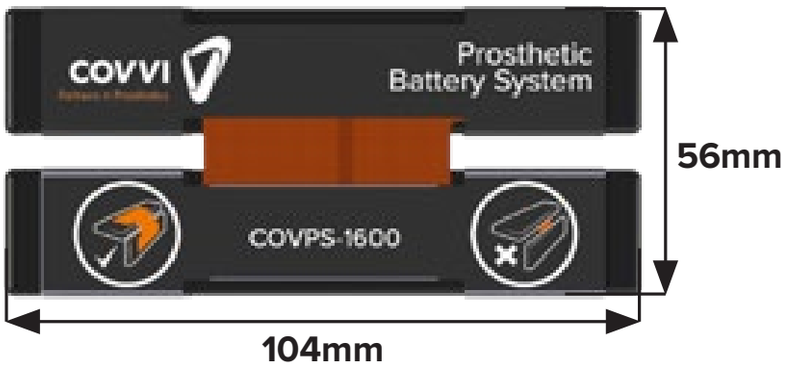
# The COVVI Power Supply

## System Specification

| | |
|---|---|
| **Power Supply** | COVPS-1600 |
| **Typical Battery Capacity** | 1600mAh |
| **Nominal Voltage** | 7.4V |
| **Maximum Current Draw** | 5A Peak |
| **Battery Unfolded / Folded (Inches)** | 4.1 x 2.2 x 0.35 / 4.1 x 0.74 x 0.89 |
| **Battery Unfolded / Folded (mm)** | 104.1 x 55.8 x 8.9 / 104.1 x 18.8 x 22.9 |
| **System Weight** | 74 grams |
| **Humidity** | Maximum 80% humidity, non-condensing |
| **Charge Temperature Range** | 10°C to +45°C |
| **Discharge Temperature Range** | -20°C to +60°C |

### Control Panel


### 1600mAh Battery



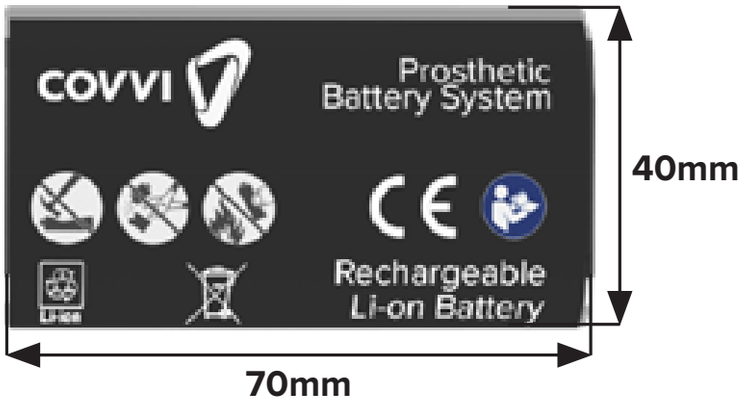

**Note:** The battery size in mm is subject to +/- 2mm due to manufacturing tolerances.

# The COVVI Power Supply

| | |
|---|---|
| **Power Supply** | COVPS-2600 |
| **Typical Battery Capacity** | 2600mAh |
| **Nominal Voltage** | 7.4V |
| **Maximum Current Draw** | 8A Peak |
| **Battery Size (Inches)** | 2.6 x 1.6 x 0.8 |
| **Battery Size (mm)** | 70 x 40 x 20 |
| **System Weight** | 104 grams |
| **Humidity** | Maximum 80% humidity, non-condensing |
| **Charge Temperature Range** | 10°C to +45°C |
| **Discharge Temperature Range** | -20°C to +60°C |

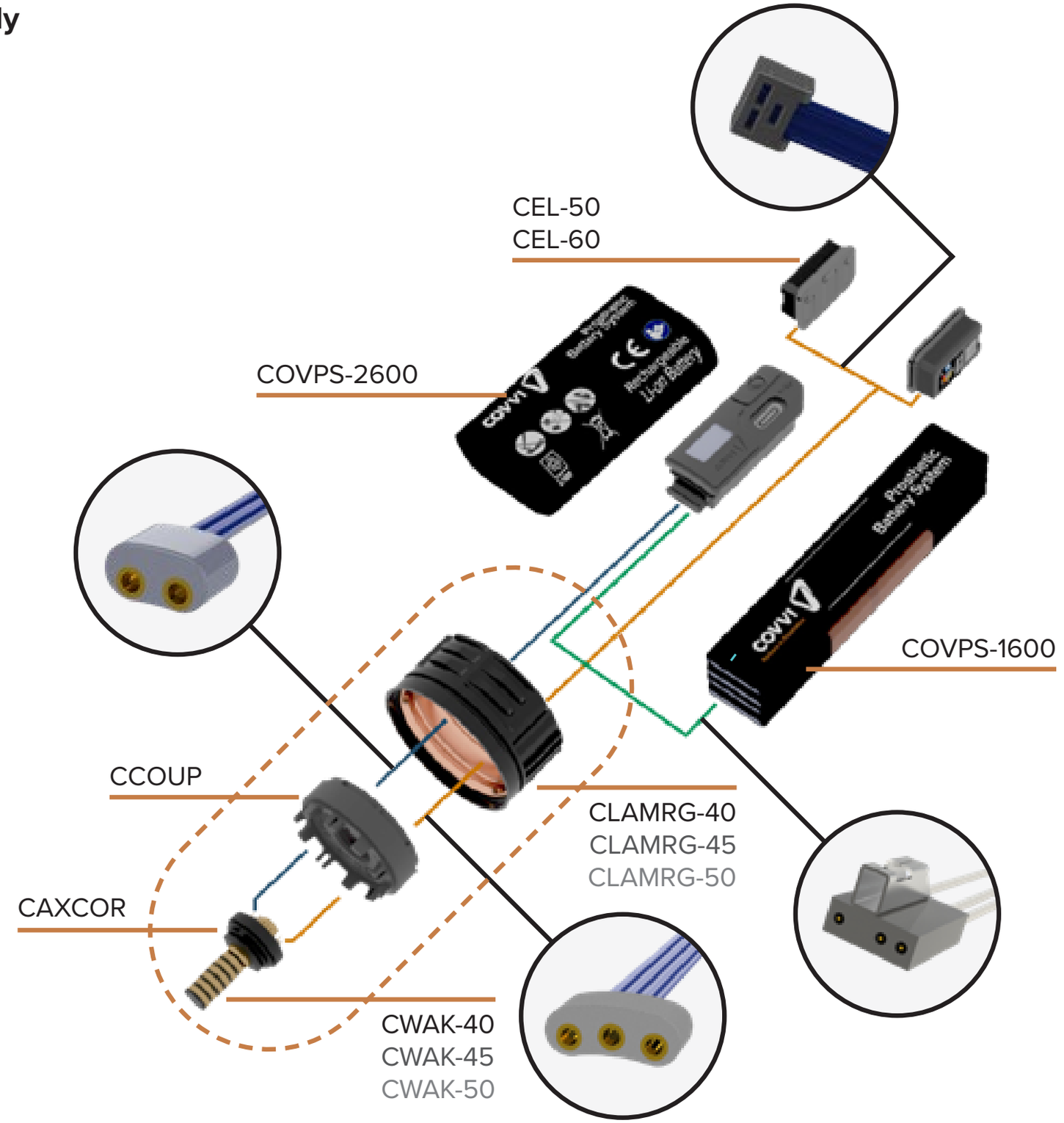
**Control Panel**


**2600mAh Battery**

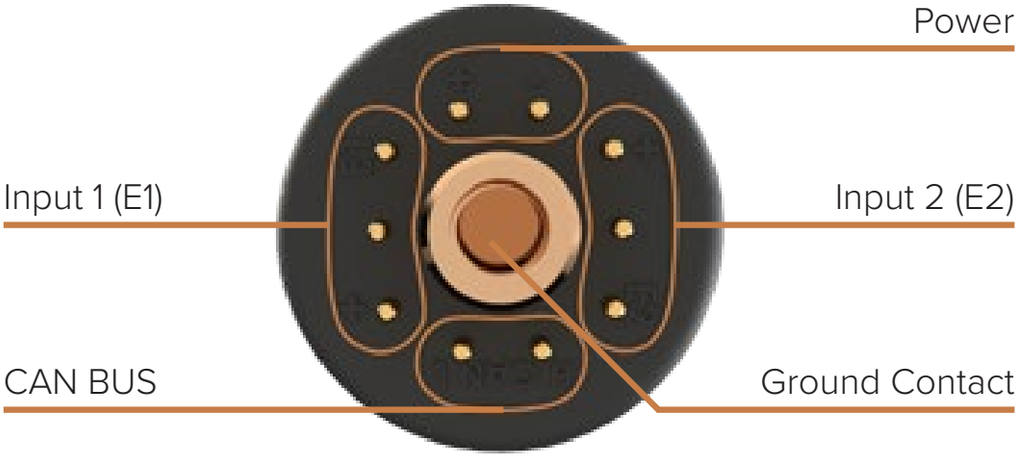


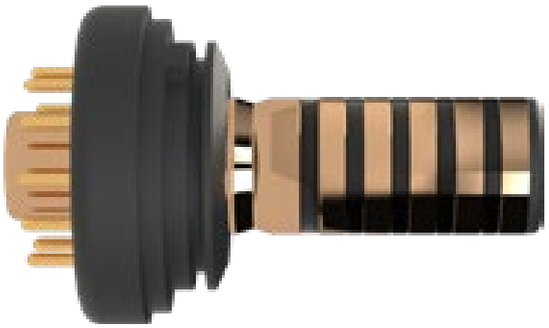
# The COVVI Power Supply

## Typical Assembly



# The COVVI Power Supply



**Ensure the M4 retaining bolt is used to secure the electrode and power cables to CAXCOR.**

**The grounding contact on the coaxial core shown in the picture above can be used for earthing carbon sockets. Please do NOT cut any system cables while the power is ON. This will short the batteries and can cause damage to the system resulting in your warranty being void.**

# The COVVI Power Supply

## System Compatibility

The COVVI Power Supply is compatible with all 7.4V nominal powered upper limb systems and can deliver a peak current of 5.0A. The system should only be used with COVVI batteries and the wall charger provided. Using generic USB-C cables may affect the ability to charge or charge times. Any modification to the COVVI Power Supply can cause injury or death.

**WARNING:** Use of accessories, transducers, and cables other than those specified or provided by COVVI Ltd. could result in increased electromagnetic emissions or decreased electromagnetic immunity of the COVVI Power Supply and result in improper operation.

## Battery Replacement

As with all batteries the capacity will degrade overtime, we expect this to become noticeable after 12 months of use. The COVVI Power Supply will support 300 charge and discharge cycles. After this, the time it takes to fully flatten the batteries will become shorter.  Replacement cells are available for the COVVI Power Supply, but both batteries must be changed at the same time. There are two versions of spare batteries depending on which version of the Power Supply you ordered. It is imperative that you replace the cells with those of the same capacity, COVSB-1600 is only compatible with the 1600mAh Power Supply and COVSB-2600 is only compatible with the 2600mAh Power Supply. Deplete the old batteries until flat and the limb no longer moves. Then disassemble the limb and replace the cells. Reassemble the limb, connect the batteries to the USB-C charger and allow them to fully charge. If this initial charge is not conducted properly it can negatively affect how the system calculates the remaining charge. Check your local waste regulations to safely dispose of your old batteries.

## Maintenance

The COVVI Power Supply does not require any specific maintenance. The Control Panel can be wiped clean using a damp soft cloth and left to dry. Do not use any solvents or abrasives as they may damage the paint finish, the clarity of the screen aperture or integrity of the silicone moulding. To ensure correct function it is important to inspect the Control Panel carefully and ensure that the USB-C port is free of debris. If debris is discovered please carefully remove this with a thin, but non-metallic object to ensure the port is not damaged. Do not expose the Control Panel or batteries to excessive heat or naked flames as this can cause damage to both the screen and the batteries ability to hold a charge. The COVVI Power Supply is IP44 rated and so will withstand contact with water but should not be submerged in water. If liquid is visible in the screen aperture, please stop using the system and it to your supplier.

# Component Compatibility

**The use of incompatible prosthetic components can cause injury due to unexpected errors. See the table below to show what products are compatible with each other. Any device or component that is not listed below is NOT recommended to be used with the Nexus Hand.**

| Company | Product | Part Number | Compatibility | Recommendations |
|---|---|---|---|---|
| **Electrodes** | | | | |
| Ottobock | Electrode | 13E200=50 | Yes | |
| Ottobock | Electrode | 13E200=60 | Yes | |
| Ottobock | Suction Socket Electrode | 13E202=50 | Yes | |
| Ottobock | Suction Socket Electrode | 13E202=60 | Yes | |
| Steeper | Electrode | Elec 50 | Yes | |
| Steeper | Electrode | Elec 60 | Yes | |
| Steeper | Seal-in Electrode | ELSK50 | Yes | |
| Steeper | Seal-in Electrode | ELSK60 | Yes | |
| Ossur | Compact Electrode Kit, 50Hz (300mm cable) | PL091050 | Yes | |
| Ossur | Compact Electrode Kit, 50Hz (600mm cable) | PL091127 | Yes | |
| Ossur | Compact Electrode Kit, 60Hz (300mm cable) | PL091060 | Yes | |
| Ossur | Compact Electrode Kit, 60Hz (600mm cable) | PL091127 | Yes | |
| IBT | Element | 80101-1 | Please see COVVI website | |

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