

# iPower-DC<sup>2</sup>

## User Manual

Thank you for selecting the Power Inspired iPower-DC<sup>2</sup> to protect your essential equipment. The iPower-DC<sup>2</sup> is an Uninterruptible Power System (UPS) providing battery backup power for DC products under 30W and operating from USB (10W max) or 9, 12 or 24Vdc. Ideal for DC powered devices including, but not limited to, network termination units, routers, hubs, IP cameras etc. It is intended to be installed between the equipment supplied AC/DC power adapter and the equipment.

**📖 Please read this manual before using the iPower-DC<sup>2</sup>.**

### ⚠ Safety

- ⚠ Never expose the iPower-DC<sup>2</sup> to direct sunlight or sources of heat.
- ⚠ The iPower-DC<sup>2</sup> should only be used and stored in a dry indoor environment.
- ⚠ Ensure that the connected equipment is within the rating of the iPower-DC<sup>2</sup>.
- ⚠ There are no user serviceable parts inside the iPower-DC<sup>2</sup> – do not open.
- ⚠ Do not use the product if the case is damaged.
- ⚠ The iPower-DC<sup>2</sup> contains batteries that, at end of life, must be processed according to local regulations.
- ⚠ Do not dispose of batteries in a fire. When exposed to flame, batteries may explode. Do not open or mutilate the battery or batteries. Released electrolyte is harmful to the skin and eyes and may be extremely toxic.
- ⚠ Ensure the DC supply is suitably current limited (*See ➤ Precautions*).

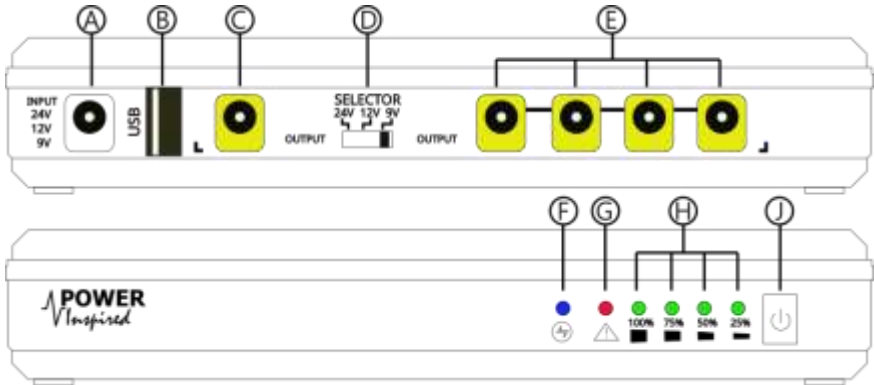
### ⚠ Precautions:

- ⚠ Ensure that the AC/DC adapter used to power the iPower-DC<sup>2</sup> is regulated to within the input voltage specification of the iPower-DC<sup>2</sup>, and an allowance of an additional 6W (0.67A@9V, 0.5A@12V, 0.25A@24V) is provided to cover the internal power consumption of the iPower-DC<sup>2</sup>.
- ⚠ The AC/DC adapter should have current limiting and short circuit protection, or suitably fused (maximum 10A) on the output. Adapters should be certified to BS EN 62368 / BS EN 60950. If supplied by an alternate DC source the same precautions apply.
- ⚠ The iPower-DC<sup>2</sup> will start up automatically when input power is applied.
- ⚠ The input DC power source must match the setting on the voltage selector switch.
- ⚠ In order to preserve battery longevity, the iPower-DC<sup>2</sup> should be recharged as soon as possible following a power outage.

### 1. Package Contents:

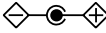
- iPower-DC<sup>2</sup> UPS | User Manual | 2x 5.5\*2.1/2.5mm sprung connector DC male cables
- Other optional accessories may be provided such as:
- DIN mounting kit | AC/DC Power Adapter | Lead adapter set | Additional Leads

## 2. Layout



- |                     |                           |                             |
|---------------------|---------------------------|-----------------------------|
| Ⓐ DC Input Socket   | Ⓓ Voltage Selector Switch | Ⓒ Warning / Fault           |
| Ⓑ USB Output        | Ⓔ Secondary DC Outputs    | Ⓗ Battery Status Indicators |
| Ⓒ Primary DC Output | Ⓕ Set Voltage Indicator   | Ⓘ On/Off Switch             |

## 3. Installation & Operation

- The iPower-DC<sup>2</sup> connects between the equipment DC supply and the equipment itself. Refer to the **⚠ Safety & ⚠ Precautions** section for supply requirements.
- Choose a suitable location out of direct sunlight and sources of heat with suitable access to the DC power supply and the connected equipment.
- Set the Voltage Selector Switch **Ⓓ** to match the required voltage.
- Note the polarity of both input and output DC jacks is centre pin positive .
- Plug in the DC adapter or DC source into input socket **Ⓐ** and apply power.
- The iPower-DC<sup>2</sup> will automatically start up.
- Ensure the voltage indicator LED **Ⓕ** is indicating the correct voltage:  
24V: RED                      12V: BLUE                      9V: PURPLE (RED & BLUE)
- If the Voltage Indicator LED **Ⓕ** is flashing and the Fault LED **Ⓒ** is illuminated the input voltage does not match the voltage selector switch **Ⓓ** setting. Switch the unit OFF by disconnecting the input DC power source from **Ⓐ** and pressing and holding the Power Off button **Ⓘ** until all the LEDs extinguish (around 3 seconds). Set the selection switch to the correct voltage and repeat.
- Plug the equipment into the USB **Ⓑ** and/or DC output jacks **Ⓒ** **Ⓔ** as required using the DC male cables provided. For best performance the primary DC equipment should be connected to port **Ⓒ**. You can use USB and DC jack outlets at the same time provided the unit rating is not exceeded.

### 3.1. Battery Operation

- The iPower-DC<sup>2</sup> will immediately transfer to battery power if the input DC voltage is lost. There is no loss of power to connected equipment.

- When running on battery power the Voltage Indicator LED ⑤ will flash and the green battery status indicator LEDs ④ will show battery status:

④④④④	④④④③	④④④②	④④④①	④④④☆
75% → 100%	50% → 75%	25% → 50%	10% → 25%	< 10%

- NOTE:** Due to the inherent discharge characteristics of Lithium batteries under varying load conditions, the battery status indicators are approximate. The unit is calibrated so that the reduction under same-load conditions from 25% to zero takes the longest time. At high loads, the battery status may drop from 100% to 75% quickly. This is normal.

### 3.2. Cold Starting (Powerbank operation)

- The iPower-DC<sup>2</sup> can be started up without DC input power by pressing and holding the ON/OFF switch ① until only the green battery LEDs ④ illuminate (around 1-2 seconds). The Voltage Indicator LED ⑤ will start to flash.
- NOTE:** The output voltage when cold starting will be as per the voltage selector switch ②. Ensure this is correct before connecting any equipment.

### 3.3. Charging

- Following battery use, the iPower-DC<sup>2</sup> will start to recharge the internal battery as soon as DC input power is restored.
- The battery status indicator will flash when charging. Once full charge has been reached the LED indicators will be steady.

④④④☆	④④☆④	④☆④④	☆④④④	④④④④
<25% charge	<50% charge	<75% charge	<100% charge	Charged

### 3.4. Switching Off

- The iPower-DC<sup>2</sup> can only be switched off in battery mode.
- Disconnect the input DC source and press and hold the ON/OFF button ① until all LEDs are off (around 3-5 seconds).

### 3.5. Other

- If there is a voltage mismatch between input voltage (not including no-voltage) and the voltage setting on ②, then the fault LED ③ will illuminate and the output power will be disconnected. This may occur when the voltage source is out of tolerance with the input specification of the iPower-DC<sup>2</sup>. Ensure the supply is regulated and within the power requirements of the equipment and the iPower-DC<sup>2</sup>.
- If the voltage setting switch ② is changed whilst the unit is in operation the output will immediately be shut down and the fault LED ③ will illuminate.
- In the event of an overload the fault LED ③ will illuminate and the output will be shut off if the unit is operating from DC power. If the input voltage source allows for it, the iPower-DC<sup>2</sup> will start up once the fault has been removed. In battery mode the unit will shut off completely and will need to be restarted once the fault is removed.
- If the fault LED ③ illuminates for any reason not specified above, disconnect and switch off the iPower-DC<sup>2</sup> and seek advice from your supplier.

## 4. Service

- Ensure the iPower-DC<sup>2</sup> is kept within normal operating and storage temperatures as specified in the specifications.
- Ensure the iPower-DC<sup>2</sup> is switched off when disconnected.

- Do not allow the iPower-DC<sup>2</sup> to remain for long periods with a discharged battery. Always recharge following battery use.
- The iPower-DC<sup>2</sup> will provide typically 5 years life in normal operating environments and does not require any ongoing maintenance.
- At end of life dispose of according to local battery and electronic equipment regulations.

## 5. Specifications

Model	IPOWER-DC2
<b>INPUT</b>	
Voltage Input	9V / 12V / 24Vdc
Range	9V : 8.7~9.7Vdc (4.14A) 12V: 11.6 ~ 13.1Vdc (3.10A) 24V: 23.2 ~ 25.4Vdc (1.55A)
Maximum Input Capacity	36W
<b>OUTPUT</b>	
Max Power [Total - USB+Jacks]	30W
<b>USB Port</b>	
Interface	USB Type A
Voltage	5V ±5%
Power Capacity	2.0A / 10W
<b>DC Output Jacks</b>	
Power Capacity	30W
Voltage	9Vdc / 12Vdc / 24Vdc (as per selector switch)
Range <i>(Specified at Primary Output Port)</i>	9V: 8.5~9.5Vdc (3.33A) 12V: 11.4 ~ 12.6Vdc (2.50A) 24V: 22.8 ~ 25.2Vdc (1.25A)
<b>BATTERY</b>	
Type	18650 Lithium Ion
Capacity	4x 3.7V 2500mAh (2S2P)
Total Capacity	37.0Wh / 10,000mAh
<b>INDICATOR LEDS</b>	
Battery Status	4x Green LED indicating 25, 50, 75 & 100% charge Flashing - Charging, @ <10% discharging 25% LED flashes rapidly
Voltage	9V - Purple [Red/Blue], 12V - Blue, 24V - Red Flashing indicates on battery power
Red Fault LED	Overload / Voltage mismatch / Fault.
<b>PROTECTION</b>	
MCU	Overvoltage, overload, short circuit, over temperature
Battery	Over Charge, Over Discharge, Overload, short circuit
<b>PHYSICAL &amp; ENVIRONMENTAL</b>	
Input Connection	5.5x2.1mm DC Jack
Output	USB Type A 5x 5.5x2.1mm DC Jack
Dimensions (WxDxH mm)	160x107x29mm ± 1mm
Weight (Gross / Net )	435/375g
Temperature	Operating 0°C → 40°C Storage -10°C → 45°C
Humidity	0-90% Non-Condensing
Altitude	To 2000m
<b>APPROVALS</b>	
UKCA / CE	LVD exempt but in principle to BS EN61204-1, BS EN62477-1 RoHS, EMC to BS EN61204-3,
Enclosure	ABS 94V0