

# USER GUIDE

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ACR1000-CPH8R-R2

ACR1000-CPH16R-R2

ACR1000-CPH-PS-R2

# CENTRAL POWER HUB

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24/7 TECHNICAL SUPPORT AT 1.877.877.2269 OR VISIT [BLACKBOX.COM](http://BLACKBOX.COM)



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## **FEDERAL COMMUNICATIONS COMMISSION AND INDUSTRY CANADA RADIO FREQUENCY INTERFERENCE STATEMENTS**

This equipment generates, uses, and can radiate radio-frequency energy, and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

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## **INSTRUCCIONES DE SEGURIDAD**

### **(NORMAS OFICIALES MEXICANAS ELECTRICAL SAFETY STATEMENT)**

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.
3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.
4. Todas las instrucciones de operación y uso deben ser seguidas.
5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc.
6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.
7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.
8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.
9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en librerías o gabinetes que impidan el flujo de aire por los orificios de ventilación.
10. El equipo eléctrico debe ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.
11. El aparato eléctrico deberá ser conectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.
12. Precaución debe ser tomada de tal manera que la tierra física y la polarización del equipo no sea eliminada.
13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.
14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.
15. En caso de existir, una antena externa deberá ser localizada lejos de las líneas de energía.
16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.
17. Cuidado debe ser tomado de tal manera que objetos líquidos no sean derramados sobre la cubierta u orificios de ventilación.
18. Servicio por personal calificado deberá ser provisto cuando:
  - A: El cable de poder o el contacto ha sido dañado; u
  - B: Objetos han caído o líquido ha sido derramado dentro del aparato; o
  - C: El aparato ha sido expuesto a la lluvia; o
  - D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o
  - E: El aparato ha sido tirado o su cubierta ha sido dañada.



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# CHAPTER 1: SPECIFICATIONS

## 1.1 SPECIFICATIONS

Approvals: CE, FCC

Operating Temperature: 32 to 104°F (0 to 40°C)

## 1.2 OPTIONS

The following options are available:

- Central power hub unit with 8 output ports Part number: ACR1000-CPH8R-R2
- Central power hub unit with 16 output ports Part number: ACR1000-CPH16R-R2
- 5VDC converter dongle with 6.5' (2m) lead Part number: ACR1000-12V5-CBL2M
- 12VDC link cable 6.5' (2m) Part number: ACR1000-3PL-CBL2M
- Secondary power module Part number: ACR1000-CPH-PS-R2

# CHAPTER 2: WELCOME

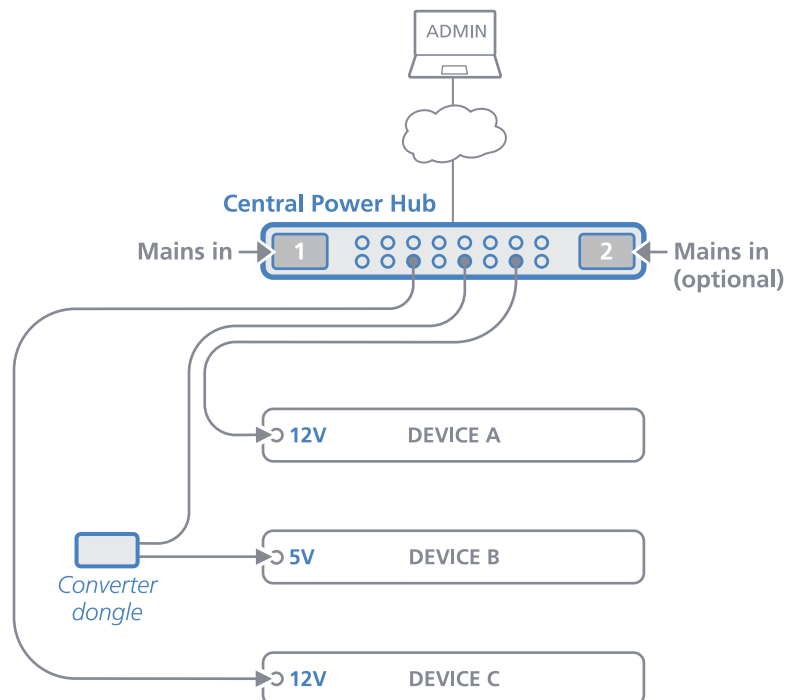
## 2.1 INTRODUCTION

Thank you for choosing the Black Box Central Power Hub. In tune with your network, as KVM systems expand so too do their requirements for the reliable supply of power.

While individual Black Box power adaptors perform well, as devices proliferate they can become unwieldy and difficult to manage. Central Power Hub provides the next step in terms of efficiency, reliability and power management.

The heart of the Central Power Hub system is a modular chassis which occupies a 1U 19" rack slot. Arranged along its rear panel are eight or sixteen low voltage output ports. These ports are then linked via cables and/or *Converter dongles* to the devices that require power. Each output has a nominal power rating of 30W.

The overall power is generated within the main chassis by either one or two plug-in 495W power modules. Adding the optional second power module provides redundancy for mission critical installations. During normal operation, the overall load is shared between the twin power modules, with the full load transferring instantly to one if the mains supply to the other should fail.



## 2.2 PROTECTION AND CONTROL

Power integrity, safety and management are core elements of the Central Power Hub system. The main chassis features a central microprocessor which manages all aspects of Central Power Hub operation. At start up it checks the validity of the single (or dual) power module(s) and then enables them. It then energizes each of the power ports in a carefully coordinated sequence to reduce the instantaneous load on the power module(s). After start up, each power port is carefully monitored to ensure safety protection while also maintaining power consistency to the multiple devices:

- **Electronic short protection** - If an overload or short circuit occurs on any output, the power is limited to a safe value (by current pulsing) until the microprocessor recognizes the overload condition and trips the output – this happens approximately one second after the fault happens. Once this occurs, you will need to correct the source of the short circuit and then reinstate the output either via the front panel CLEAR button or the management application. The other power output ports will remain unaffected during this period.
- **5V overload protection** - Where an optional converter dongle is used to supply a 5V device, an extra layer of vigilance is brought into play. If the load on a dongle exceeds approximately 5.5A, then an internal circuit will trip to protect the power modules and the cabling. Once the cause is dealt with, a simple toggling of the power port will restore output.
- **Limited power source (LPS)** - Further automated protection circuits within the Central Power Hub unit ensure that it fully complies with the IEC62368-1 regulation to operate as a Limited Power Source.

Available anywhere, via the in-built Ethernet port, a browser-based management application allows authorized admin users to monitor and control the power module(s) and all of the individual power output ports.

## 2.3 5VDC CONVERTER DONGLES

Each power output port operates at 12VDC. For devices that use 12VDC, a simple connection cable (ACR1000-3PL-CBL2M) is all that's required to link them to each power port. However, numerous Black Box devices operate at a lower voltage of 5VDC and these each require the use of a converter dongle (ACR1000-12V5-CBL2M) to take the place of the simple connection cable.

## CHAPTER 3: INSTALLATION

### 3.1 INSTALLATION

Please consider the following important points when planning the position of the Central Power Hub unit:

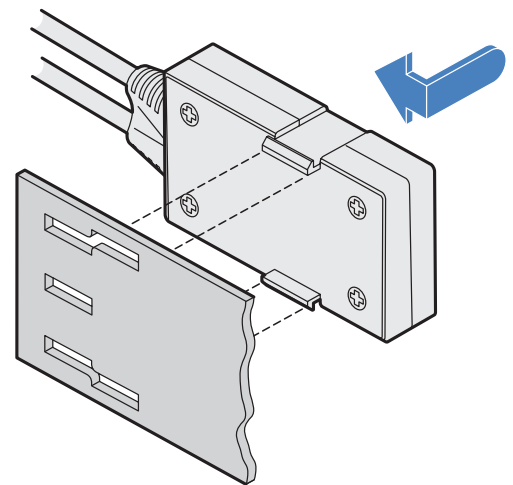
- The Central Power Hub main chassis occupies a single 1U (19") rack slot and requires either one or two (when the redundancy option is used) mains inputs.
- For devices that require a 12VDC supply, a 2m link cable (ACR1000-3PL-CBL2M) is required.
- For devices that require a 5VDC supply, a small Converter dongle (ACR1000-12V5-CBL2M) is required to be positioned close to the device(s) being powered. See below for details.
- Consult the precautions listed within the Safety information section.

### 3.2 MOUNTING CONVERTER DONGLES

For each device that requires a 5VDC supply (12VDC devices require only a simple cable), a Converter dongle is required. Each converter dongle must be placed in close proximity to the device. To assist with mounting dongles in congested spaces, an optional elongated rack bracket is available for ServSwitch Agility units that allows each dongle to be positioned just behind the device that it is powering.

Insert the tabs of the dongle through the wider spaced holes of the rack bracket and then slide the dongle back to lock it in place.

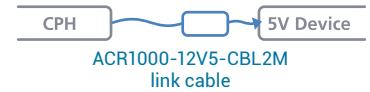
*Note: The indentations on the side of the converter dongle allow it to be fixed to other surfaces using a single plastic cable tie.*





### 3.3 CONNECTIONS

The multiple output ports of the Central Power Hub each provide power at 12VDC; when powering a 12VDC device, you merely need to use a basic cable (part number: ACR1000-3PL-CBL2M). However, if you need to power a 5VDC device, you must use a converter dongle (part number: ACR1000-12V5-CBL2M).

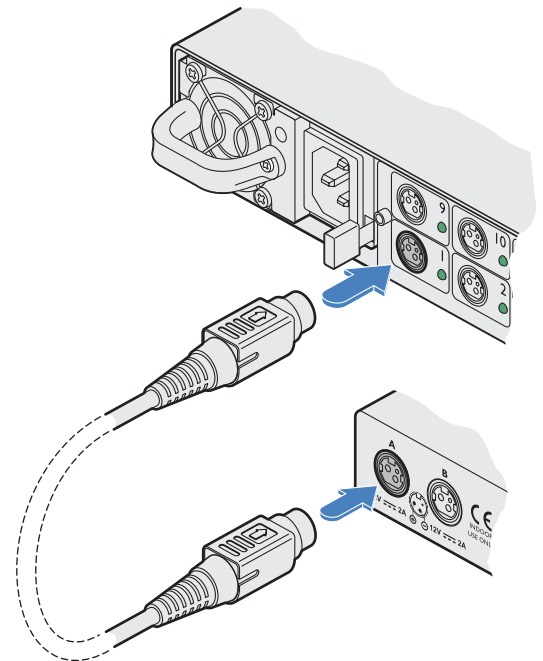


#### 3.3.1 CONNECTING A 12V DEVICE

Devices that require a 12VDC supply can be connected directly to a power port using a simple link cable.

- 1 Connect the locking 3-pin plug at one end of the ACR1000-3PL-CBL2M cable to the power input socket of the device - the lead is 2m (6.5 feet) in length.
- 2 Connect the locking 3-pin plug at the other end of the cable to one of the power output sockets on the rear panel of the Central Power Hub main chassis.

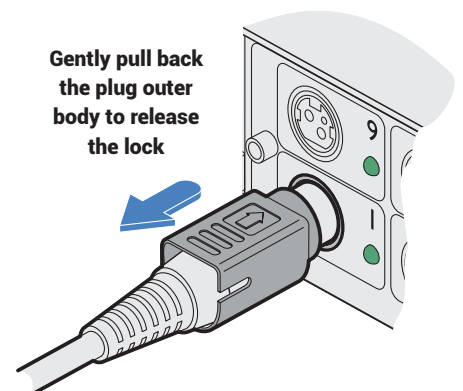
ACR1000-3PL-CBL2M link cable



#### 3.3.2 DISCONNECTING A 3-PIN LOCKING PLUG

- 1 Use the management application to remove power from the required power outlet - the green indicator must be off.
- 2 Grasp the outer body of the 3-pin plug.
- 3 Gently pull back the body of the outer plug. As the body of the plug slides back, it will release from the socket and you can fully withdraw the whole plug.

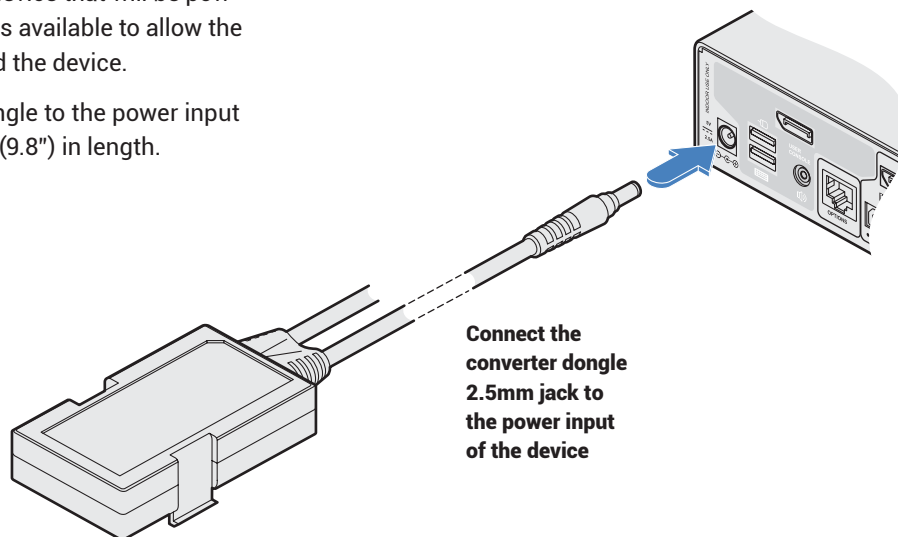
**Gently pull back the plug outer body to release the lock**



### 3.3.3 CONNECTING A 5V DEVICE

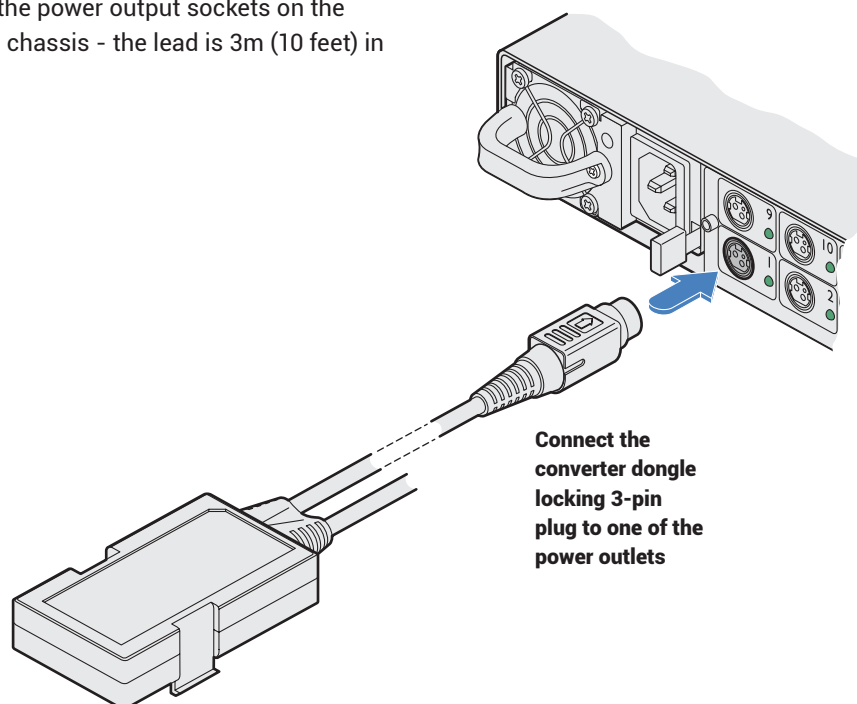
Devices that require a 5VDC supply require the use of a Converter dongle to form the link between the Central Power Hub port and the device, while also transforming the voltage level. Each converter dongle has two leads: a 2.5mm power jack and a locking Kycon® 3-pin plug.

- 1 Mount the converter dongle close to the device that will be powered. An optional elongated rack bracket is available to allow the dongle to be mounted immediately behind the device.
- 2 Connect the 2.5mm power jack of the dongle to the power input socket of the device - the lead is 250mm (9.8") in length.



**ACR1000-12V5-CBL2M - converter dongle with 2m cable**

- 3 Connect the locking 3-pin plug to one of the power output sockets on the rear panel of the Central Power Hub main chassis - the lead is 3m (10 feet) in length.



### 3.4 FITTING/REMOVING A POWER MODULE

The Central Power Hub main chassis can accommodate two power modules, although operation is perfectly possible with just one module fitted. The addition of a second module provides redundancy for critical installations.

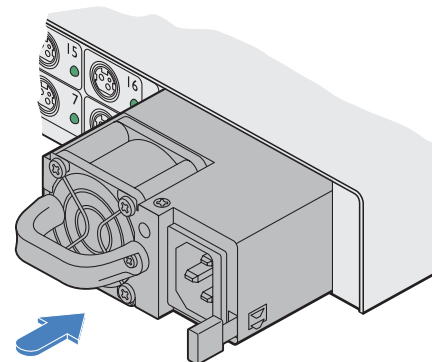
**IMPORTANT:** To ensure correct and reliable operation, only approved power modules may be used with the Central Power Hub.

*Note: Module bay 1 is on the left as you view the rear of the Central Power Hub chassis, module bay 2 is on the right.*

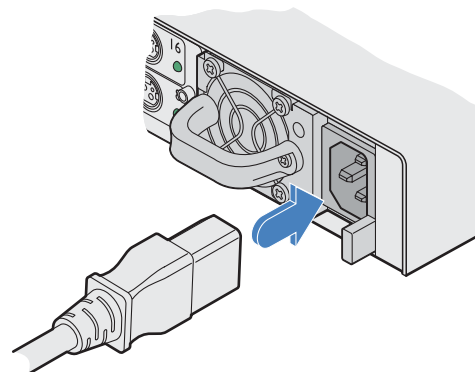
#### 3.4.1 TO FIT A POWER MODULE

*Note: Power modules are hot-pluggable (i.e. while power is applied to the other module), be sure to observe safe working practices and anti-static precautions when fitting a module to a working Central Power Hub chassis.*

- 1 If a blanking plate is fitted, remove it to reveal the power module bay.
- 2 Observing suitable anti-static precautions, remove the new power module from its packing.
- 3 Carefully slide the power module into the vacant bay until the locking clip 'clicks' to hold the module in place.



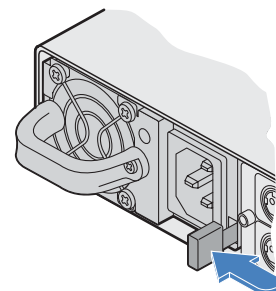
- 4 Insert an IEC power cord into the socket on the module and apply power to the module.



#### 3.4.2 TO REMOVE A POWER MODULE

*Note: Power modules are hot-pluggable (i.e. while power is applied to the other module), be sure to observe safe working practices and anti-static precautions when removing a module from a working Central Power Hub chassis.*

- 1 Isolate power from the module to be removed and disconnect the IEC power cord.
- 2 Push the locking lever to the left so that the module un-clips and use the handle to carefully pull the module out of the bay.
- 3 If no replacement module is to be used, fit a blanking plate to cover the vacant bay.




**IMPORTANT:** Please read and adhere to the electrical safety information given within the Safety information section of this guide. In particular, do not use an unearthed power socket or extension cable.

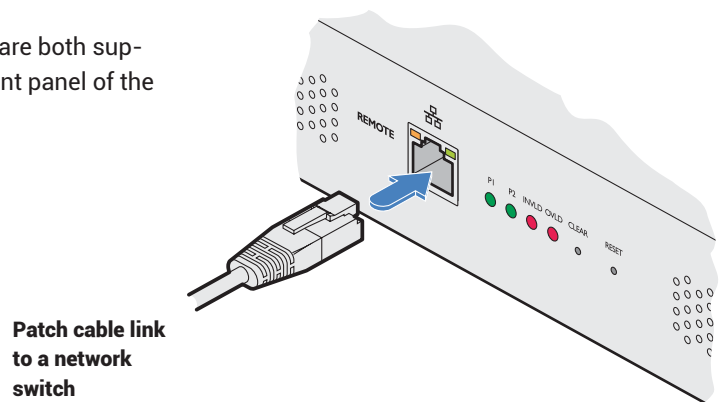
*Note: Various items within the Central Power Hub casing generate heat when in operation and will become warm to the touch. Ensure that air can circulate freely at the rear of the enclosure, particularly by the power module cooling fans. Do not operate the equipment in ambient temperatures exceeding 50 degrees Centigrade. Do not place the products in contact with equipment whose surface temperature exceeds 50 degrees Centigrade.*

### 3.5 NETWORK CONNECTION

The Central Power Hub allows remote monitoring and control via a standard network connection.

#### 3.5.1 TO CONNECT TO A NETWORK

- 1 Use a screened patch cable (cross-over or straight connections are both supported) to link the Ethernet 10/100 network port (  ) on the front panel of the main chassis switch to a network switch.



## CHAPTER 4: CONFIGURATION

### 4.1. ACCESSING THE MANAGEMENT APPLICATION

Each Central Power Hub is configured via its network connections using an intuitive browser-based application. This secure, password protected application is accessible by any authorized admin user, located anywhere.

#### 4.1.1 TO ACCESS THE MANAGEMENT APPLICATION

- 1 Use a computer that is directly or indirectly (i.e. via a network switch) connected to the Central Power Hub unit. If you need to make a temporary connection, see below.
- 2 Run a web browser on your computer and enter the IP address of the Central Power Hub. The default IP address setting is: 192.168.1.22
- 3 If requested, enter your username and password to log on.

*Note: The default username and password are 'admin' and 'password' respectively.*

The opening page of the management application should be displayed:

Central Power Hub  
12VDC POWER DISTRIBUTION UNIT

Central Power Hub  
UNIT ID : Central Power Hub  
SIGNED IN AS : admin

BLACK BOX

Status & Control

Updated the lists at 10:11:02.

Power Input

ID	State	Internal Temp	Ambient Temp	Fan Speed	Mains Current	Output Current
1	PRESENT	22°C	20.2°C	6880 RPM	-	-
2	ACTIVE	24.5°C	22.5°C	7232 RPM	0.1 A	0.5 A

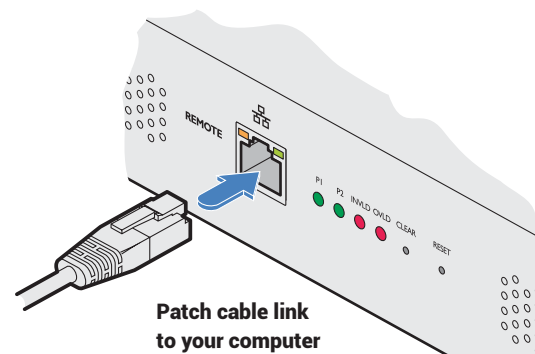
Power Output

ID	State	Current	Power	Name
1	ON	-	0.0 W	Edit
2	ON	-	0.0 W	Edit
16	ON	-	0.0 W	Edit

ALL ON ALL OFF

#### 4.1.2 TO TEMPORARILY CONNECT A COMPUTER TO THE NETWORK PORT

- 1 If you need to make a temporary connection for configuration purposes, use a standard patch cable (cross-over or straight connections are both supported) to link the Ethernet 10/100 network port (🔌) on the front panel of the main chassis to your computer.



## 4.2 THE STATUS & CONTROL PAGE

This opening page of the manager application provides a useful real time overview of the power input and output status. Using this page you can quickly ascertain the key metrics related to the power modules (e.g. temperatures, fan speeds, mains and output currents) as well as each output port. Additionally, you can monitor, name and control each output port individually.

**Key metrics for the single, or dual, power module(s), including the temperatures, cooling fan speeds, mains input and low voltage output currents.**

Central Power Hub  
12VDC POWER DISTRIBUTION UNIT

Central Power Hub  
UNIT ID : Central Power Hub  
SIGNED IN AS : admin

**BLACK BOX**

Status & Control  
Updated the lists at 10.11.02.

**Power Input**

ID	State	Internal Temp	Ambient Temp	Fan Speed	Mains Current	Output Current
1	PRESENT	22°C	20.2°C	6880 RPM	-	-
2	ACTIVE	24.5°C	22.5°C	7232 RPM	0.1 A	0.5 A

**Power Output**

ID	State	Current	Power	Name
1	ON	-	0.0 W	<input type="button" value="Edit"/>
2	ON	-	0.0 W	<input type="button" value="Edit"/>
16	ON	-	0.0 W	<input type="button" value="Edit"/>

Click the required menu item to reveal the available page choices.

Status details for all power output ports. To change the output status, click the ON / OFF button. To rename a port, click the Edit button.

Use these buttons to affect all power output ports collectively. When the ALL ON button is pressed, the individual ports will be energized in a staggered sequence determined by the Channel interval setting in the General configuration page.

#### **4.2.1 TO CHANGE THE STATUS OF A SINGLE POWER OUTPUT PORT**

- 1 Locate the required power output port entry by its ID number or Name (if given).
- 2 Click the corresponding State button to change the output port from ON to OFF, or vice versa.

#### **4.2.2 TO CHANGE THE STATUS OF ALL POWER OUTPUT PORTS**

- 1 Locate the ALL ON and ALL OFF buttons below the Power Output section. As appropriate, click either the ALL ON or ALL OFF button.
- 2 Click OK to confirm your choice in the subsequent popup.

*Note: When the ALL ON button is pressed, the individual ports will be energized in a staggered sequence determined by the Channel interval setting in the General configuration page.*

#### **4.2.3 TO NAME A POWER OUTPUT PORT**

- 1 Locate the required power output port entry.
- 2 Click the corresponding Edit button. A cursor will appear within the Name field.
- 3 Enter the required name for the power output port and click the Update button.

*Note: Name fields accept ASCII characters only. UTF-8 characters are not supported.*

### 4.3 THE GENERAL CONFIGURATION PAGE

This page contains various important settings related to Central Power Hub labelling, login, identity and startup.

**IMPORTANT: When you make a change to any setting, don't forget to click the Update button to save the change.**

*Note: The Name, Description and Location fields accept ASCII characters only. UTF-8 characters are not supported.*

The screenshot shows the 'General Configuration' page for a Central Power Hub. The page has a dark theme. On the left is a navigation menu with buttons for 'STATUS & CONTROL', 'CONFIGURATION', 'GENERAL CONFIGURATION', 'NETWORK SETTINGS', 'USER ACCOUNTS', and 'SYSTEM OPERATIONS'. The main content area is titled 'General Configuration' and includes a subtitle 'View / set the device identification and basic settings.' Below this are several configuration fields: 'Name' (text input: 'Central Power Hub'), 'Description' (text input: '16 port power supply'), 'Location' (text input: 'server room 1'), 'Login required' (checkbox: checked), 'Start up delay (/s)' (slider: 1), 'Channel interval (/s)' (slider: 0.5), 'Firmware version' (text: '1.00'), and 'Identify' (button: 'Flash LED'). At the bottom of the configuration area is a large 'UPDATE' button.

- Name - the primary identity of this Central Power Hub unit.
- Description - a further opportunity to add more information about the Central Power Hub unit.
- Location - a useful feature if you have multiple Central Power Hub units distributed around.
- Login required - when ticked, all users will be requested to enter a valid username and password prior to access being granted.
- Start up delay - this setting determines the time delay in seconds that should elapse, after mains power is first applied to the unit, before the power modules apply their full supply to the Central Power Hub chassis. This feature is useful when multiple Central Power Hub units are fed from the same mains power feed. By staggering the switch on points of the various units, the impact of multiple switched mode power supplies and their initial in-rush currents are greatly reduced. Values range from 0 to 10 seconds.
- Channel interval - this setting determines the time delay, in seconds, that should elapse between each power output port being energized. This performs an important task in preventing initial power overloads as each device reaches its quiescent state. Values range from 0.1 to 2 seconds.
- Firmware version - displays the current version of internal software used within the Central Power Hub logic system.
- Identity - used to visually identify the Central Power Hub unit when multiple units are installed together. Click the Flash LED button to flash the front panel LED indicators, as follows:
  - Click the button once to flash the LED indicators five times.
  - Click the button twice to flash the LED indicators indefinitely.
  - Click the button a third time to stop the flashing.



## 4.4 THE NETWORK SETTINGS PAGE

This determines the network settings used by the Central Power Hub unit.

**IMPORTANT:** When you make a change to any setting, don't forget to click the Update button to save the change.

Central Power Hub  
12VDC POWER DISTRIBUTION UNIT

Central Power Hub  
UNIT ID : Central Power Hub  
SIGNED IN AS : admin

**BLACK BOX**

STATUS & CONTROL

CONFIGURATION

GENERAL CONFIGURATION

NETWORK SETTINGS

USER ACCOUNTS

SYSTEM OPERATIONS

Network Settings

View / set the device network settings.

Obtain IP Address automatically (DHCP)

IP Address ? 192 · 168 · 42 · 205

Netmask 255 · 255 · 255 · 0

Gateway 192 · 168 · 42 · 1

MAC Address 00:0F:58:03:2C:14

UPDATE

- Obtain IP Address automatically - when ticked, the Central Power Hub will use DHCP (Dynamic Host Configuration Protocol) to automatically determine all network settings (and all other options in this page will be grayed out). When unticked, use the other options to configure the network settings manually.
- IP Address - set the IP address for the Central Power Hub.
- Netmask - set a subnet mask to accompany the IP address.
- Gateway - optionally define a suitable address for a gateway device (only needed if external access to Central Power Hub is required).
- MAC Address - displays the unique (and fixed) MAC address for the Central Power Hub.

## 4.5 THE USER ACCOUNTS PAGE

This page allows you to administer the details for users of the Central Power Hub unit. By its nature Central Power Hub is not an end user access product, so every authorized user is considered as an admin with the same rights. Extra users can be added and deleted, however, the main 'admin' entry cannot be deleted or renamed, only its password can be changed.

*Note: The Central Power Hub will only request Login details if the 'Login required' option within the General configuration page is ticked.*

Central Power Hub  
12VDC POWER DISTRIBUTION UNIT

Central Power Hub  
UNIT ID : Central Power Hub  
SIGNED IN AS : admin

**BLACK BOX**

STATUS & CONTROL

CONFIGURATION

GENERAL CONFIGURATION

NETWORK SETTINGS

USER ACCOUNTS

SYSTEM OPERATIONS

User Accounts

View / edit the list of users.

Add New User

User Name

Password

Confirm password

ADD

Users

User Name	Password	
admin	*****	Edit

### 4.5.1 TO ADD A NEW USER

- 1 Enter a User Name and Password (and then Confirm password) in the labeled fields.

*Note: The User Name and Password fields accept ASCII characters only. UTF-8 characters are not supported.*

- 2 Click the Add button. If the two password entries match, the new user details will be added to the list of Users below.

### 4.5.2 TO EDIT A USER

- 1 Locate the required entry within the Users list.
- 2 Click the Edit button, change the necessary details and then click the Update button.

*Note: The main 'admin' entry name cannot be deleted or renamed, only its password can be changed.*

### 4.5.3 TO DELETE A USER

- 1 Locate the required entry within the Users list.
- 2 Click the Delete button.

*Note: The main 'admin' entry name cannot be deleted.*

## 4.6 THE SYSTEM OPERATIONS PAGE

This page contains various options for resetting and updating the Central Power Hub. All options given here will interrupt normal operations and should be used with caution.

The screenshot displays the 'System Operations' page of the Central Power Hub. The page header includes the 'Central Power Hub' logo and the 'BLACK BOX' logo. The user is signed in as 'admin'. The navigation menu on the left lists 'STATUS & CONTROL', 'CONFIGURATION', 'GENERAL CONFIGURATION', 'NETWORK SETTINGS', 'USER ACCOUNTS', and 'SYSTEM OPERATIONS'. The main content area is titled 'System Operations' and contains three sections: 'Device Reset', 'Factory Reset', and 'Firmware Update'. Each section has a warning message and a corresponding button.

**Central Power Hub**  
12VDC POWER DISTRIBUTION UNIT

Central Power Hub  
UNIT ID : Central Power Hub  
SIGNED IN AS : admin

**BLACK BOX**

**System Operations**

Reset the device and update the device firmware.

**Device Reset**

WARNING: All Outputs will be disconnected while the device is reset and rebooted.

DEVICE RESET

**Factory Reset**

WARNING: All Outputs will be disconnected while the device is reset and rebooted, and the IP address will be reset to 192.168.1.22.

FACTORY RESET

**Firmware Update**

NOTE: To complete the update, you may need to restart the browser or delete this app. from the browser's history.

### 4.6.1 DEVICE RESET

This option will reset the operation of the Central Power Hub unit, equivalent to a cold reboot (as if power to it had been removed and restored). All power outputs will be removed and then restored in a staggered manner defined by the start up delay and Channel interval settings within the General configuration page. No configuration details will be changed but you will need to reconnect your network link with the Central Power Hub unit.

#### 4.6.1.1 TO RESET THE CENTRAL POWER HUB DEVICE

- 1 Click the Device Reset button.
- 2 Click OK to confirm your choice in the subsequent popup.

## **4.6.2 FACTORY RESET**

This option will perform a cold reboot but will also return all configuration details to the factory settings. Note: The IP address will be returned to 192.168.1.22 (DHCP will be disabled) and all user entries apart from the main admin will be removed. You will need to reconnect your network link with the Central Power Hub unit.

### **4.6.2.1 TO PERFORM A FACTORY RESET**

- 1 Click the Factory Reset button.
- 2 Click OK to confirm your choice in the subsequent popup.

## **4.6.3 FIRMWARE UPDATE**

This option will perform an update to the firmware contained within the logic circuitry of the Central Power Hub unit. You will first need to download the latest firmware file for the device from Black Box technical support and ensure that it is unzipped and accessible from the computer you are using to access the Central Power Hub unit.

### **4.6.3.1 TO PERFORM A FIRMWARE UPDATE**

- 1 Click the Select Firmware File button. A file dialog will be displayed.
- 2 Use the file dialog to locate the new firmware file and click Open.
- 3 Click the Update Firmware button.



## CHAPTER 5: OPERATION

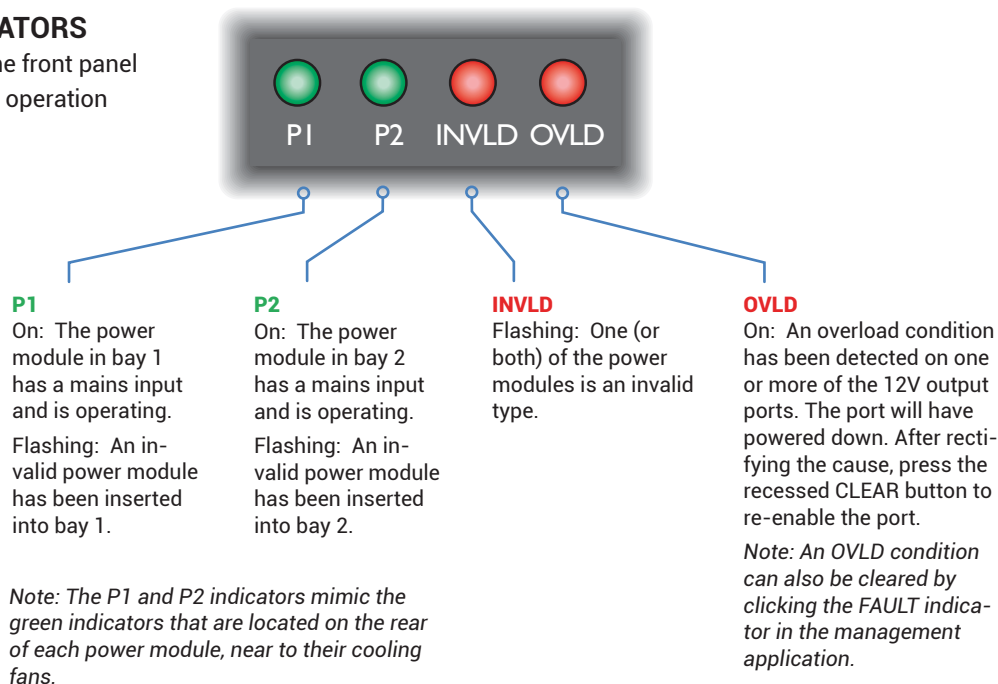
The Central Power Hub system is designed to be transparent in operation.

### 5.1 INDICATORS

The Central Power Hub main chassis contains various indicators to provide you with status information. There are four main indicators on the front panel as well as green and amber indicators on the network port connector.

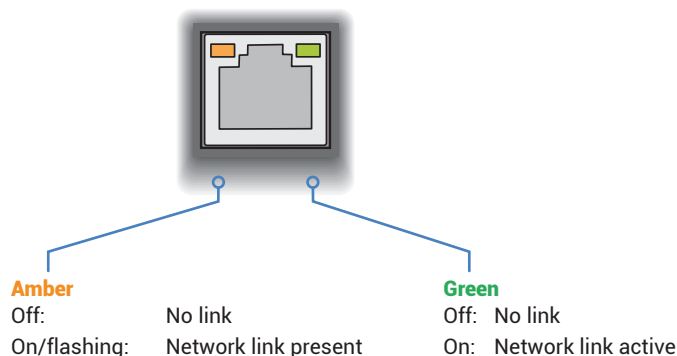
#### 5.1.1 RED STATUS INDICATORS

The red status indicators on the front panel provide various key power and operation feedback:



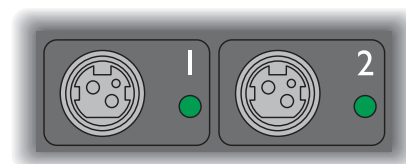
#### 5.1.2 GREEN AND AMBER NETWORK STATUS INDICATORS

The green and amber status indicators on the front panel network port connector provide further status information:



#### 5.1.3 GREEN POWER OUTPUT STATUS INDICATORS

On the rear panel, each power output port has a green status indicator:



On: Power (12VDC) is being supplied to the adjacent port.

## 5.2 RESTORING POWER OUTPUTS

As discussed in the Welcome section, the Central Power Hub ports are carefully monitored to ensure safety protection while also maintaining power consistency to the multiple devices:

- Electronic short protection - If an overload or short circuit occurs on any output, the power is limited to a safe value (by current pulsing) until the microprocessor recognizes the overload condition and trips the output – this happens approximately one second after the fault happens. The resulting trip is indicated on the Central Power Hub front panel by the OVLD being on and also within the management application ('FAULT' is shown next to the affected port within the Status & Control page).
- 5V overload protection - Applicable only to outputs that use optional Converter dongles. When the load exceeds approximately 5.5A\*, a dongle will internally trip its power output. In most cases this will occur before the electronic short protection (mentioned above) reacts. In such cases, the power trip will not be reported back to the Central Power Hub unit and its output will remain intact, although the listed current output for that port will fall to (or near) zero.

### 5.2.1 TO RESTORE A POWER OUTPUT

- 1 Following an automatic power trip, your first task is to locate the cause of the problem. It may have been a temporary overload issue that has subsided or something more permanent. Perform thorough checks on the implicated device and all of the power cabling between it and the Central Power Hub.
- 2 Depending on where the trip was made, you will see different results:
  - If the Central Power Hub electronic short protection circuit responded, the front panel **OVLD** indicator will be lit and also the rear panel green indicator adjacent to the affected port will be **OFF**. Within the Status & Control page of the manager application, the port State will be shown as **FAULT**.
  - If the converter dongle overload circuit responded, it is likely that the corresponding Central Power Hub output port will still be active.
- 3 Accordingly, your remedial actions will differ:
  - Where the fault is indicated on the front panel **OVLD** indicator (once you have diagnosed and corrected the cause), use a narrow implement (e.g. straightened paperclip) to press and release the recessed front panel **CLEAR** button. The power output to port will be reinstated. Alternatively, within the management application (Status & Control page), click the **FAULT** state shown against the affected port.
  - Where the fault was detected by a converter dongle, either use the Status & Control page of the management application to switch the port **Off** and then **On**; or at the Central Power Hub rear panel remove and reconnect the converter dongle connection.
- 4 For a suitable period after resuming the power supply to the affected port, closely monitor the device, the Central Power Hub and all related cabling for a reoccurrence of the same or similar problem.

\* If you are using the management application to monitor supply currents, remember that due to the conversion from 12VDC to 5VDC, the values shown at the power output ports (within the app) differ from the currents flowing to the device. Roughly speaking, 5.5A at the 5V level will be reported at the management application as 2.3A at 12V.



### **5.3 RESETTING THE CENTRAL POWER HUB**

If it becomes necessary to reset the entire Central Power Hub unit, this can be achieved either using the management application (see The Systems operation page) or the recessed RESET button on the front panel. Using either method it is possible to enact a basic reset (equivalent to removing and restoring mains power) or a full factory reset.

#### **5.3.1 DEVICE RESET FROM THE FRONT PANEL**

This procedure will reset the operation of the Central Power Hub unit, equivalent to a cold reboot. All power outputs will be removed and then restored in a staggered manner (as defined within the management application). No configuration details will be changed.

- Use a narrow implement (e.g. straightened paperclip) to press and release the recessed front panel RESET button.

#### **5.3.2 FACTORY RESET FROM THE FRONT PANEL**

This procedure will perform a cold reboot but will also return all configuration details to their factory settings. *Note: The IP address will be returned to 192.168.1.22 (DHCP will be disabled) and all user entries apart from the main admin will be removed.*

- Use a narrow implement (e.g. straightened paperclip) to press and hold the recessed front panel RESET button for 20 seconds.

## APPENDIX A: SAFETY INFORMATION

- For use in dry, oil free indoor environments only.
- Do not use to link between buildings.
- Ensure that the twisted pair interconnect cable is installed in compliance with all applicable wiring regulations.
- Do not connect the CATx link interface (RJ45 style connector) to any other equipment, particularly network or telecommunications equipment.
- Warning – the power adapter contains live parts.
- No user serviceable parts are contained within the power adapter - do not dismantle.
- Plug the power adapter into a grounded socket outlet close to the unit that it is powering.
- Replace the power adapter with a manufacturer approved type only.
- Do not use the power adapter if the power adapter case becomes damaged, cracked or broken or if you suspect that it is not operating properly.
- If you use a power extension cord with the units, make sure the total ampere rating of the devices plugged into the extension cord do not exceed the cord's ampere rating. Also, make sure that the total ampere rating of all the devices plugged into the wall outlet does not exceed the wall outlet's ampere rating.
- Do not attempt to service the units yourself.
- The units and power supplies can get warm in operation – do not situate them in an enclosed space without any ventilation.
- The units do not provide ground isolation and should not be used for any applications that require ground isolation or galvanic isolation.





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TECHNICAL  
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ACR1000, rev. 1.0



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