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**UNINTERRUPTIBLE POWER SUPPLY (UPS)
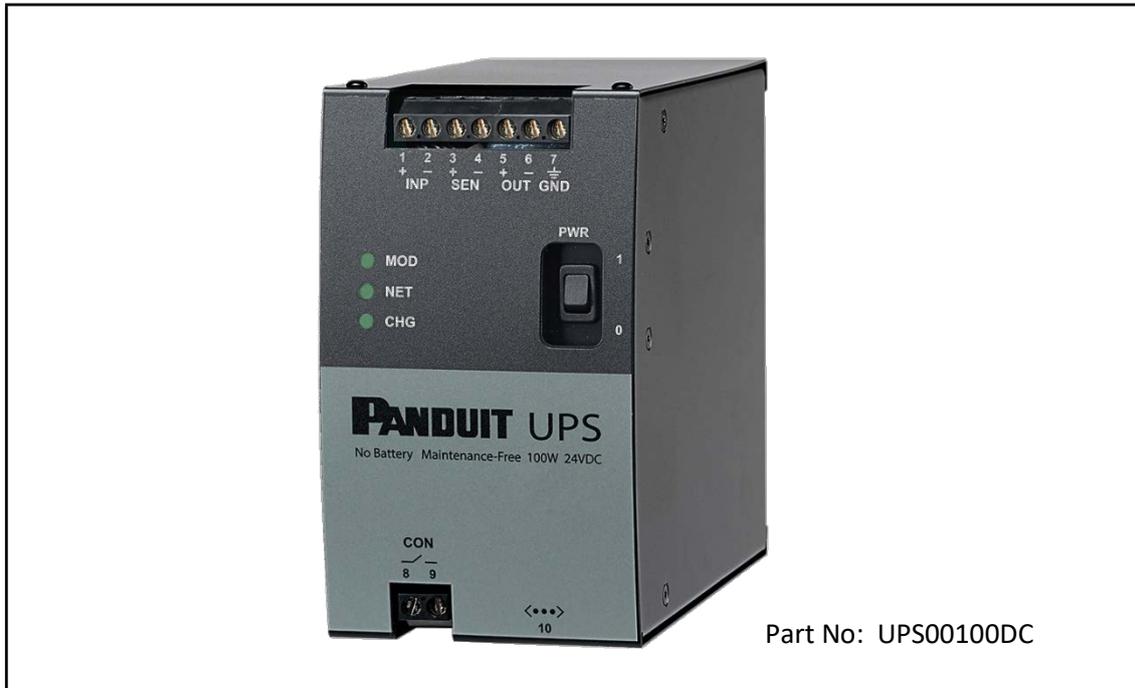USER MANUAL**

IA-CD-0009
Rev: 07   09-2018

English

Part No: UPS00100DC

 TO REDUCE RISK OF INJURY, THE USER MUST READ THE USER MANUAL

⚠️ *NOTE: Throughout this document, the UPS00100DC (Uninterruptible Power Supply) may also be referred to as "UPS".*

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> **NOTE: In the interest of higher quality and value, Panduit products are continually being improved and updated.**
> **Consequently, pictures may vary from the enclosed product.**

1. INTRODUCTION

1.1. BACKGROUND

The Uninterruptible Power Supply (UPS) is designed to provide backup power to a 24 VDC load in the event of power dips or power outages. The unit utilizes Electrochemical Double-Layer Capacitor cells (EDLCs) as the energy storage device to provide a long, maintenance-free operating life without the need for battery replacement. The UPS accepts a 24 VDC input voltage[1] and provides a 24 VDC output voltage[2] to a load with a maximum output power of 100W. A bank of twelve 350F EDLCs provide energy storage of approximately 9.3 kJ which can supply a 100W load for a run time of about 1 minute. The UPS may be used in a redundant power supply system or a single supply system. In a redundant power supply system, the UPS monitors the power delivered by a second supply to the load through an external sense resistor (sold separately). Operating status and control are provided via a web server running on the UPS. This web server may be accessed via a web browser running on a PC connected to the same network as the UPS. The ON/OFF switch may be used to turn the UPS off which removes voltage from the terminals so that the unit is safe for installation or servicing downstream equipment.

The UPS utilizes multiple EDLC cells in series to achieve the appropriate operating voltage of the UPS. Due to small differences in cell capacitance and leakage current, it is possible to have different voltages on each of the cells in the series stack. Each cell voltage is monitored to stay in a safe range. The UPS includes a microcontroller that performs this "cell balancing" function by monitoring each of the twelve cell voltages and adjusting these voltages to be consistent across the stack thus allowing the cells to all age at the same rate to provide maximum life of the product and hold time to the load.   The UPS also periodically measures the capacitance of each cell. This information is used to calculate the energy storage capability (hold time) of the UPS as well as the operating lifetime (State of Health) of the unit.
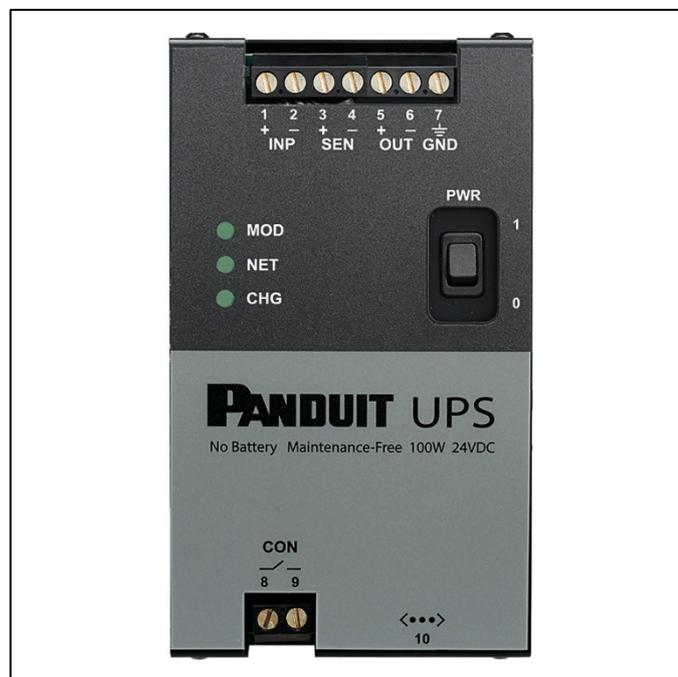
Figure 1: Front View of UPS

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[1] Refer to the Input Power Section 2.2 for the details.
[2] Refer to the Output Power Section 2.3 for the details.

1.2. PURPOSE

The purpose of this document is to provide the user with the information necessary to operate the UPS.

1.3. EQUIPMENT OVERVIEW

Box Contents:

- The Uninterruptible Power Supply box contains the following:
  - Uninterruptible Power Supply (UPS) model number UPS00100DC
  - This User Manual in three languages
  - A UPS Performance Date Product Certificate

1.4. OPTIONAL LOAD SENSE MODULE

Please see the Load Sense Module UPS003LSM instruction manual for integrating the load sense module to your system. Document number PA27224A01 is included with the LSM or on www.panduit.com. The schematic in Figure 7 shows the wiring diagram for the system configuration with redundant power supplies and the LSM. Figure 2 shows the Load Sense Module.

Figure 2: Optional Load Sense Module

1.5. CABLE DETAILS

- The UPS hardwire terminals can receive up to 12 AWG wiring, maximum. Consult with a qualified electrician for appropriate wire gauge needed for the application.
- The network cable is a standard CAT5E Ethernet patch cord or greater.

1.6. TERMS AND ABBREVIATIONS

- A: Ampere
- AWG: American Wire Gauge
- DC: Direct Current
- DHCP: Dynamic Host Configuration Protocol
- EDLC: Electrochemical (Electric) Double-Layer Capacitor
- EOL: End of Life
- EOSL: End of Service Life
- F: Farad
- LED: Light Emitting Diode
- LSM: Load Sense Module
- MAC: Media Access Control
- PC: Personal Computer
- PCB: Printed Circuit Board
- SOH: State of Health
- UPS: Uninterruptible Power Supply
- V: Volts
- VDC: Volts Direct Current
- W: Watts
- WBI: Web Browser Interface

2. UPS GENERAL SPECIFICATIONS

2.1. Model Part Number

- UPS00100DC - Panduit's 100-Watt Uninterruptible Power Supply

2.2. Input Power

- Voltage: 24.0 to 28.0 VDC
- Power Minimum: 24W with no load, charging on "slow charge" setting per Section 5.8.2
- Power Maximum: 156W with 100W load, charging on "fast charge" setting per Section 5.8.2
- Protection: Over-voltage shut down at 32 VDC. Maximum over-voltage is +50 VDC at 25°C ambient.
- Reverse voltage maximum is -50 VDC at 25°C ambient

⚠ CAUTION	Never apply a voltage that exceeds the maximum over-voltage under any circumstances.

2.3. Output Power

- Input present:
  - Voltage: 24 VDC
  - Current: 6.5A max.
  - 500 mV drop at 100W load
- Input not present:
  - Voltage: 24 VDC pass through
  - 21.0 to 23.0 VDC charging Current: 4.5A pass-through
- 4.55A charging at 22 VDC. Short-circuit rating: 6.1A to 7.7A

2.4. Environmental

- Operating Temperature: -40 to +60°C
- Operating Humidity: 0 to 95% RH, non-condensing
- Operational Vibration: 2G at 10 to 500 Hz
- Operational Shock: 20G (11ms 3 bumps / direction, 18 bumps in total)
- Storage (non-operational) Temperature: -40 to +70°C
- Storage Humidity: 0 to 95% RH, noncondensing

2.5. Compliance

- FCC Title 47 CFR 15 Subpart B Emissions Class A
- CAN ICES-3(A)/NMB-3(A), ICES-003 Issue 5
- UL 508 and CSA-C22.2 No. 107.1-01 "Industrial Control Equipment"
- UL 60950-1, 2nd ed, 2014-10-14, CSA C22.2 No. 60950-1-07, 2nd ed, 2014-10
  "Information Technology Equipment - Safety - Part 1: General Requirements"
- (Low-Voltage Directive*) IEC 60950-1:2005, A2:2013,
  EN60950-1:2006+A11:2009+A1:2010+A12:2010+A2:2013
  "Information Technology Equipment - Safety - Part 1: General Requirements"
- RoHS All materials and components used must meet the material restrictions of European Directive
  2011/65/EU on the Restriction of Hazardous Substances
- IP20 per IEC 60529
- Hazardous Location:
    - ExTR Reference Number: US/UL/ExTR18.0001/00
    - ExTR Free Reference Number: 4788081819-18ATEX1992
    - ISA 12.12.01:2013, CSA C22.2 No. 213-1987M (R2013) "Standard for Nonincendive Electrical
      Equipment for Use in Class I and II, Division 2, Groups A, B, C, and D and Class III, Divisions 1 and 2
      Hazardous (Classified) Locations"
    - IEC/EN 60079-15, 4th Edition (2010-01)
    - IEC/EN 60079-0, 6th Edition (2011-06)
    - IECEx: IECEx UL 18.0001X
    - ATEX: DEMKO 18 ATEX 1992X

Figure 3: Product Label and Description

⚠ **NOTE:** For use in Class I, Zone 2 environment, the UPS/LSM must be used in an enclosure certified for use in Class I, Zone 2, Groups IIC. The equipment shall only be used in an area of not more than pollution degree 2, as defined in IEC/EN 60664-1. The equipment shall be installed in an enclosure that provides a degree of protection not less than IP 54 in accordance with IEC/EN 60079-15 (tool accessible). Transient protection shall be provided that is set at a level not exceeding 140 % of the peak rated voltage value at the supply terminals to the equipment. The enclosure must have a door or cover accessible only using a tool.

⚠ **NOTE:** This product is intended for use in a restricted location such as inside a machine, control cabinet, enclosure, or similar structure. Restricted access can be provided by a door, cover, or similar physical means that requires the use of tools, keys, or other secure methods to gain access. The level of security required should determine the location, protection, and access methods.   Not for use in a computer room as defined in the Standard for the Protection of Information Technology Equipment, ANSI/NFPA 75.

2.6. Installation

- Top hat (DIN) rail EN 50022
- Width: 81 mm (3.2 in)
- Depth: 178 mm (7.0 in)
- Height: 145 mm (5.7 in)
- Weight: 5 lbs, max.
- Switch: Output On/Off, recessed
- Terminals: screw type, accepts 18 to 12 AWG, stranded/solid/terminated wire
- Control wiring is along the top edge.
  - Input (INP 1+, INP 2-): Connection to the power source. Observe polarity when wiring.
  - Sense (SEN 3+, SEN 4-): Connection to the optional Load Sense Module. Observe polarity when wiring.
  - Output (OUT 5+, OUT 6-): Connection to the load. Observe polarity when wiring.

- Alerting/Communication wiring is along the bottom edge of the UPS.
  - o Control Output: Isolated, SPST-NO (Form A) contact, rated 30 VDC at 1A maximum that may be connected to an alarm. Contact will be closed when the output of the UPS is providing power.
  - o Communications: RJ45 jack for Ethernet (10BaseT) communications.

2.7. Performance

- Hold Time: Typically, 1 minute ± 15% with a 100W load connected to the output terminals. The Hold Time will vary depending on the State of Health of the UPS. The Hold Time is also affected by the load: a lighter load will result in a longer Hold Time.
- Voltage Drop: 500 mV maximum from Input to Output when Input power is present.
- Output Transition Transient: 5 ms max, 18 to 23 VDC with a 100W load present (transient when transitioning from pass through to UPS backup power).
- Ripple Voltage: 50 mVp-p max. over 20 Hz to 20 MHz.
- Charge Times:
  - o Fast: 9 to 12 minutes at nominal 31.8W Input Power
  - o Slow: 11 to 15 minutes at nominal 22.5W Input Power

2.8. Indicators

- Module Status: per The EtherNet/IP Specification (Volume 2, Chapter 9 Section 4.3) – refer to Module Status Indicator Section 7.1.1 for details.
- Network Status: per The EtherNet/IP Specification (Volume 2, Chapter 9 Section 4.4) – refer to Network Status Indicator Section 7.1.2 for details.
- Charge Status – refer to Charge Status Indicator Section 7.1.3 for details.

2.9. Power Switch

- A toggle switch to enable and disable UPS operations – refer to ON/OFF POWER SWITCH Section 4.5.1 for details.

2.10. Web User Interface

- IP Address: Dynamic by default: the UPS requires DHCP server on the same subnet to establish communications. The UPS could be reconfigured to a Static IP Address. Refer to the Network Section 5.7 on how to change this setting.
- Content (Available pages in the WBI):
  - o Module
  - o Network
  - o Charge
  - o Settings

2.11. Network Interface

- Protocol: Ethernet/IP, operating as a slave, Generic Profile
- Certification: ODVA

2.12. Shipping and Storage

NOTE: The UPS must be stored or shipped with the power switch turned ON

- Refer to ON/OFF POWER SWITCH Section 4.5.1 for removing the UPS from service and preparing it for shipping or storage.

2.13. Maintenance

- State of Health (SOH) - Capacity remaining until End of Life
  - o 20 years at 20°C maximum UPS ambient temperature
  - o 5.8 years at 40°C maximum UPS ambient temperature
  - o 1.8 years at 60°C maximum UPS ambient temperature

3. PRECAUTIONS AND GENERAL GUIDELINES

The basic condition for safe use and proper operation of the UPS is the knowledge and attention to the safety information provided in this manual. The following safety information must be observed by all personnel working with the UPS. All rules and instructions for the work place must be observed especially those pertaining to the prevention of accidents.

The information and instructions contained in this document are not intended to be utilized as a substitute for proper training and experience in the safe installation and operation of said product. Prior to installation, it is the owner's responsibility to consult with the appropriate local Authority Having Jurisdiction (AHJ) for all applicable codes, permits, regulations, and standards.

This product, should only be installed and serviced by a licensed electrical contractor, or competent technician that meets the following qualifications:

- Is thoroughly familiar with this product and the instructions for installation and operation.
- Is trained (accredited) in industry-accepted safe operating practices and procedures regarding identification and mitigation of high and low-voltage hazards and situations.
- Is trained to identify and install appropriately-sized Branch Circuit Disconnect(s) with appropriately-sized Branch-Circuit Protective Rating and Short-Circuit Current Rating (SCCR) before connecting any Panduit product to the branch circuit.
- Is trained and authorized to energize, de-energize, clear, and ground power distribution equipment.
- Is trained in the care and use of PPE (personal protective equipment) including, but not limited to: arc-flash protective clothing, safety glasses, face shield, hard hat, gloves, and non-conductive tools (clamp stick, hot stick, etc.).

⚠	This symbol is used to call your attention to hazards or unsafe practices which could result in an injury or property damage. The signal word, defined below, indicates the severity of the hazard. The message after the signal word provides information for preventing or avoiding the hazard.
⚠ **WARNING**	Hazards which, if not avoided, COULD result in severe injury or death.
⚠ **CAUTION**	Hazards or unsafe practices which, if not avoided, MAY result in injury or property damage.

3.1. Safety Warnings

⚠️ WARNING

- **Read all safety warning and all instructions. Failure to follow the warnings and instructions may result in electric shock, fire, and/or serious injury.**
- **Save all warnings and instructions for future reference.**

Table 1: Safety Warnings

⚠️	**Panduit Corp. recommends the UPS be used with all installed safety features. Customer assumes all liability for injury that could result from improper use of this UPS and responsibility for all necessary training to ensure safe operation of this UPS.**
	• *FOR INSTALLATION AND USE BY TRAINED PERSONNEL ONLY.*
	• *IF ANY DAMAGE TO THE PRODUCT IS APPARENT OR SUSPECTED, DO NOT USE THE PRODUCT. REFER PRODUCT TO QUALIFIED SERVICE PERSONNEL.*
	• *FCC WARNING: CHANGES OR MODIFICATIONS TO THE PRODUCT WILL VOID THE USER'S AUTHORITY TO OPERATE THE PRODUCT.*
	• *USE RECOMMENDED ACCESSORIES. CONSULT THE OWNER'S MANUAL FOR RECOMMENDED ACCESSORIES. THE USE OF IMPROPER ACCESSORIES MAY CAUSE RISK OF INJURY TO PERSONS.*
	• *SUCCESSFUL AND SAFE OPERATION OF THIS EQUIPMENT IS DEPENDENT ON PROPER HANDLING, STORAGE AND INSTALLATION.*

3.2. Electrical Safety Practices

GROUNDING:

In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current which reduces the risk of electrical shock.

Improper connection of the equipment grounding conductor can result in a risk of electric shock. The conductor with insulation having an outer surface that is green (with or without a yellow stripe) is the equipment-grounding conductor.

Check with a qualified electrician, or service personnel if the grounding instructions are not completely understood or if in doubt as to whether the UPS is properly grounded.

Avoid body contact with earthed or grounded surfaces, such as pipes, radiators, ranges, and refrigerators.

There is an increased risk of electric shock if your body is earthed or grounded.

3.3. Operation

	⚠ WARNING
	ONLY OPERATE THE UPS IN A CLEAN, DRY, INDOOR ENVIRONMENT. **DO NOT EXPOSE THE UPS TO RAIN OR WET CONDITIONS.** *Water entering a UPS will increase the risk of electric shock.*
	⚠ *KEEP AWAY FROM LIVE CIRCUITS:*
	• Operating personnel must not remove covers. • Replacement of components and internal adjustments must be made by qualified maintenance personnel. • Disconnect power when replacing components. • Dangerous voltages may exist even with the power removed. • To avoid injuries, always disconnect power and turn power switch to OFF. • Input connection to the product must remain accessible as a disconnect device. • DO NOT work on the product; connect or disconnect cables during periods of lightning. • Provide wiring per national and local electrical codes.

3.4. Personal Safety

⚠ WARNING

• **Use personal protective equipment. Safety glasses must be worn always by all personnel when installing or uninstalling the UPS.**

3.5. Service

Have your UPS serviced by a qualified repair personnel using only identical replacement parts.

Contact Panduit Customer Service and Technical Support at the following locations:

Customer Service   General Technical Support

800-777-3300   email: TechSupport@panduit.com

Email: cs@panduit.com

The information contained in this manual is based on experiences to date and is believed to be reliable. It is intended as a Web Interface for use by personnel having technical skill at their own discretion and risk. We do not guarantee favorable results or assume any liability in connection with its use. Dimensions contained herein are for reference purposes only. For specific dimensional requirements consult the factory. This publication is not to be taken as a license to operate under or a recommendation to infringe any existing patents.

4. HARDWARE INSTALLATION

4.1. BACKGROUND

The UPS is designed to be installed on a the EN 60715 NS35 DIN rail. Use of this product in other applications is acceptable but other precautions may be required to allow for specific installations and are not covered in this manual.

4.2. PRODUCT INSPECTION/Registration

Inspect the UPS for any visible signs of damage before installing. If damaged, please contact Panduit customer support at 1-800-777-3300 or cs@panduit.com.

Please register your product to receive notification of firmware and product updates at:
https://pages.panduit.com/Product-Registration-Request.html

4.3. OVERVIEW

The physical connections[3] to the UPS are arranged on the top and bottom edge of the front panel on the unit. The top edge of the unit contains the functional interfaces which includes the input voltage source connections (INP 1+, INP 2-), the external sense resistor connections (SEN 3+, SEN 4-), the output voltage connections (OUT 5+, OUT 6-), and the chassis ground (GRD 7). The bottom edge of the unit contains the communication interfaces which includes the control output relay connections (CON 8, CON 9) and the Ethernet connections (‹…›10). The front panel also contains an ON/OFF power switch and three indicator LEDs. The front panel is shown in Figure 4: UPS Front Panel Details. Refer to Figure 5 for the location of the reset button and serial number.

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[3] Make sure to observe the polarity of the connections between the Power Supply and UPS, between the LSM and UPS, and between the Load and the UPS so they are properly connected.
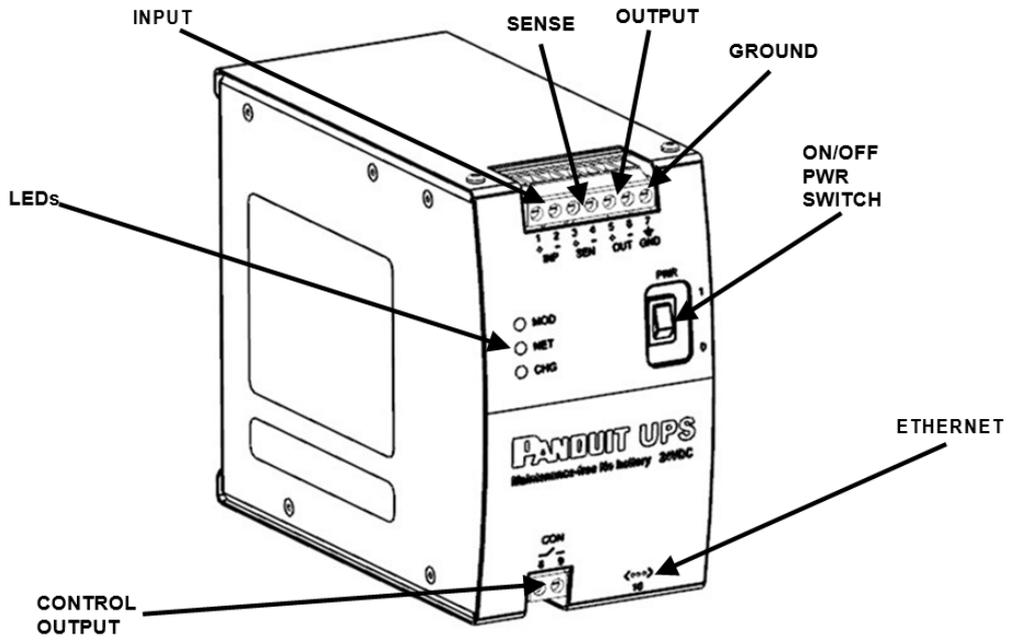
Figure 4: UPS Front Panel Details
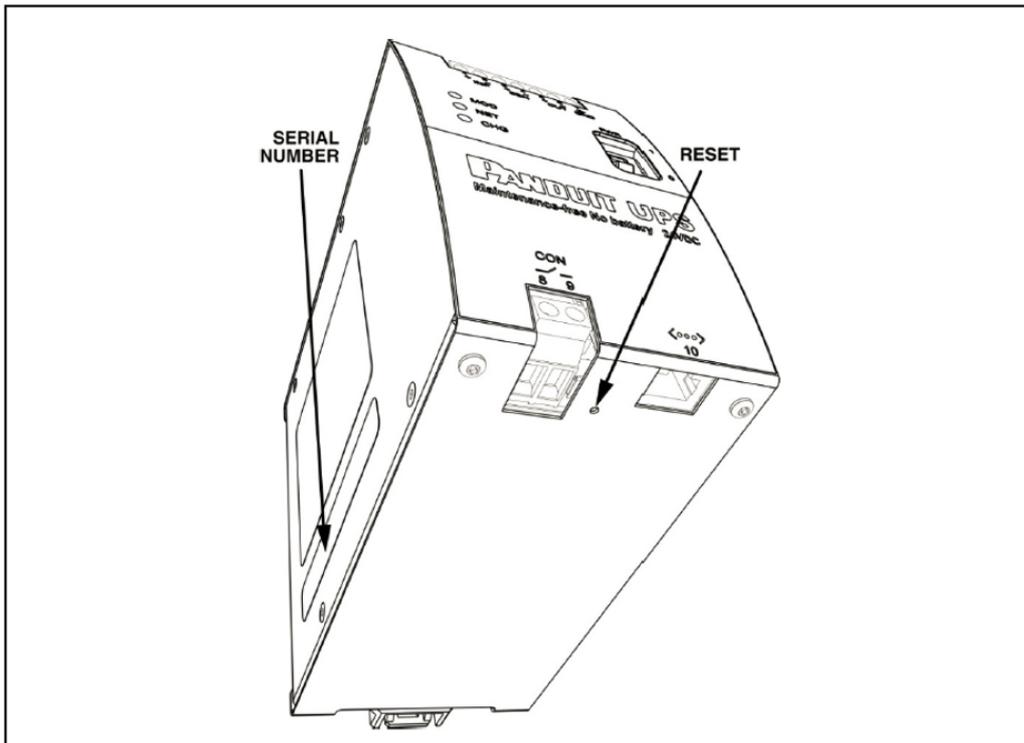
Figure 5: Reset Button and Serial Number

4.4. HARDWARE INSTALL
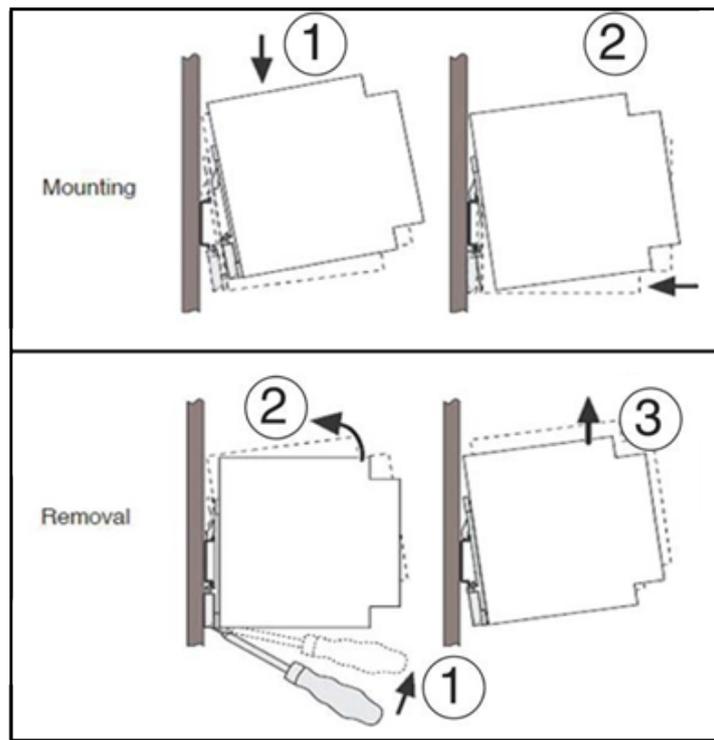
Figure 6: DIN Rail Installation

No minimum side-to-side spacing to other devices is required for proper operation of the UPS. However, ensure there is ample space to cable components to protect the cabling integrity. Also ensure there is access to the power switch, the LEDs, the reset button, and the Ethernet port on the underside of the device.

To install the UPS, place the module with the DIN rail guide on the top edge of the DIN rail and then snap it downwards as shown in Figure 6: DIN Rail Installation. To remove the UPS, release the snap-on catch using a standard screwdriver, tilt the unit up to detach the module from the bottom edge of the DIN rail as shown in Figure 6: DIN Rail Installation then lift the unit off the top edge of the DIN rail.

4.5. WIRING

This product is intended to be hardwired at the customer site/location. It must be installed by a qualified electrician in compliance with all local and national regulations.

⚠ **NOTE**: The UPS should be shipped with the power switch in the ON position. Ensure that the power switch is in the OFF position before installation.

A typical configuration is where the UPS provides backup power to a load with redundant power source as shown in Figure 7: System Wiring Diagram. The Primary Power Supply provides power to the load through the optional load sense module (LSM). UPS SEN 3+ pin is connected to pin 3 of the LSM and UPS SEN 4- pin is connected to pin 4 of the LSM.

Another configuration may be where the UPS provides backup power to a load with a single power source. Using Figure 7: System Wiring Diagram to visualize this configuration, remove the Primary Power Supply, the LSM and the associated wiring. Then relabel the Secondary Power Supply and the Secondary connection to load as Primary. In this configuration no LSM is required and there will be no connections to the SEN pins on the UPS.
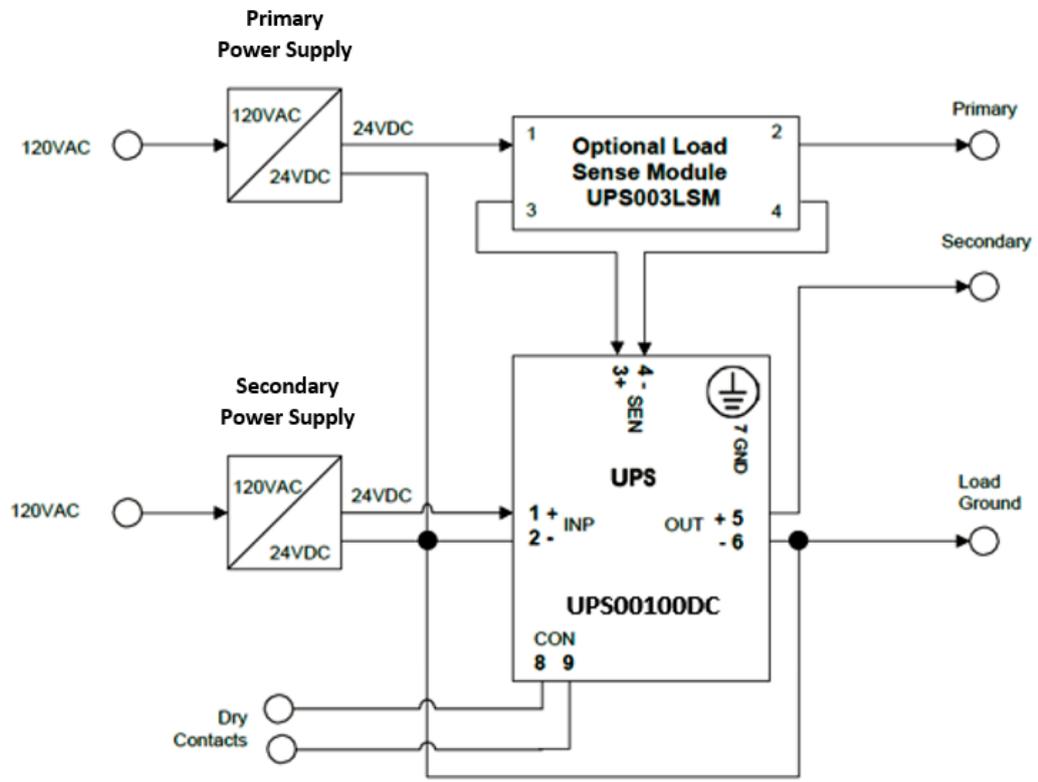
Figure 7: System Wiring Diagram

Warning: A disconnect switch is required on the input circuit in accordance with the National Electric Code, ANSI/NFPA 70.

4.5.1. ON/OFF POWER SWITCH
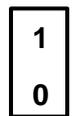
This toggle switch enables operation of the UPS when it is set to the "ON" position. When set to the "OFF" position, the LEDs will be OFF and there will be no voltage present on any of the output (OUT) terminals, making the UPS safe for installation or servicing downstream equipment.
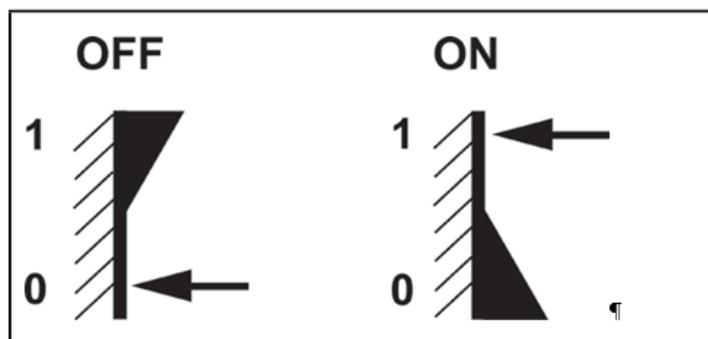
Figure 8: UPS ON/OFF Switch Positions

It is recommended to discharge the cells before storage and/or transportation the UPS. The recommended way of discharging these cells is to remove all connections to the UPS and then set the UPS power switch to the "ON" position. **NOTE**: UPS LEDs will turn on and output voltage will be present on the UPS output (OUT) terminals until the cells discharge below the working voltage. Leave the UPS in a safe, controlled environment until the LEDs power off. It will take approximately one hour with no load for the cells to drain below the working voltage. Once the LEDs turn off, it is now safe to place the UPS into the appropriate packaging for storage or transport. **NOTE**: Store and/or transport the UPS with the power switch in the "ON" position.

⚠️ Note that when the toggle switch is in the "ON" position, voltage may still be present at the DC output terminals even when the input terminals are disconnected from power. Do not attempt to make connections to the terminals when the toggle switch is in the "ON" position.

Warning: A disconnect switch shall be provided by others for DC input circuit and shall be in accordance with the National Electric Code, ANSI/NFPA 70.

Connect the conductors according to the wiring diagram on Figure 7: System Wiring Diagram. Consult the Load Sense Module Instruction Manual before installing the Load Sense Module. Omit connections to the optional Load Sense Module if redundant power connection is not used.

4.6. DC POWER INPUT

The two screw terminals above the legend marked "INP" are to be connected to an external DC power supply. The terminal marked "+" is to be connected to the positive supply line from the power supply and the terminal marked "-" is to be connected to the return or ground line[4] to the power supply. The input maximum voltage should not be greater than 28 VDC.

The terminals are designed to accept 18 to 12 AWG (0.823 mm^2 to 3.31 mm^2) wire. Torque terminal screws to 7 in-lbs. (0.7909 Nm). Ensure the proper local and national regulations are followed when selecting wiring components with regards to the system configuration.

4.7. SENSE INPUT

The two terminals above the legend marked "SEN" are to be connected to the optional load sense module, Panduit part number UPS0030LSM. The input voltage should not be greater than 28 VDC.

The terminals are designed to accept 18 to 12 AWG (0.823 mm^2 to 3.31 mm^2) wire. Torque terminal screws to 7 in-lbs. (0.7909 Nm). Ensure the proper local and national regulations are followed when selecting wiring components with regards to the system configuration.

4.8. DC POWER OUTLET

The two terminals above the legend marked "OUT" are to be connected to the load. The terminal marked "+" is to be connected to the positive supply line to the load and the terminal marked "-" is to be connected to the return or ground line[5] from the load. Note that the "-" terminal for the power input and power output are connected internal to the UPS. The current draw from the UPS to the load should not be greater than 4.5 A. The operating output voltage should not be greater than 28 VDC.

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[4] This is may or may not be the same ground as the UPS chassis ground (GRD 7), depending on the system configuration.
[5] This may or may not be the same ground as the UPS chassis ground (GRD 7) depending on the system configuration.

The terminals are designed to accept 18 to 12 AWG (0.823 mm^2 to 3.31 mm^2) wire. Torque terminal screws to 7 in-lbs. (0.7909 Nm). Insure the proper local and national regulations are followed when selecting wiring components with regards to the system configuration.

4.9. GROUND

The terminal above the legend GND should be connected to the equipment ground.

4.10. CON-CONTROL RELAY

The two terminals below the legend "CON" provide a normally open, single-pole/single-throw (SPST-NO Form A) relay contact. The contact shall be closed if output power is present and off if output power is not present. This device offers added visibility through a separate communication channel (PLC, light stack, etc.). The status of the relay follows the charge status indicator as shown in table below.

Table 2: Relay Contact Status

Input	Output	Charge Status	Control Output
0 VDC	0 VDC	N/A	**Off**
24 VDC	24 VDC pass through	Charging	**On**
24 VDC	24 VDC pass through	Charged	**On**
0 VDC	18-22 VDC backup	Discharging	**On**
0 VDC	0 VDC	Discharged	**Off**

4.11. Status LEDs – Visual Indicators

There are three LEDs on the front panel of the UPS.

- MOD – represents the status of the Module (UPS), per the EtherNet/IP Adaptation of CIP, CIP Network Library Standard, Volume 2
- NET – represent the status of the network connection to the UPS, per the EtherNet/IP Adaptation of CIP, CIP Network Library Standard, Volume 2
- CHG – represents the charge status of the UPS

Refer to the Troubleshooting Section 7 for the details on these indicators.

5. NETWORK INSTALLATION

5.1. ETHERNET

The Ethernet port marked below the legend <…> is a standard RJ-45 type jack shown in Figure 5: Reset Button and Serial Number. This port should be connected to a router running a DHCP server. By Factory Default, the UPS obtains an IP address from the DHCP server. The interface allows remote access to the UPS via the WBI. The WBI allows the user to monitor the UPS status and reconfigure the UPS default values. The following is a list of the Factory Default Values in the UPS:

Description	Factory Default Values
Charge Speed	Slow
Device Name	Panduit UPS
Network Settings	DHCP
Password	*UPS Serial Number*
Username	Panduit UPS
Language	English

These values may be changed through the WBI.

Connecting the UPS to the network is optional, the UPS will operate as a standalone module without a connection to the network.

5.2. WEB BROWSER INTERFACE (WBI)

The UPS web server is compatible with Microsoft Internet Explorer 9, 10, and 11 running on Windows 7 operating system. Other web browsers and operating systems may work as well but proper operation is not guaranteed. The appearance of the WBI may be adjusted through the web browser settings.

5.3. CONNECTING TO THE UPS

In the web browser address bar, type "http://nnn.nnn.nnn.nnn" where nnn.nnn.nnn.nnn is the IP address assigned to the UPS by the DHCP server. The Module page will appear.

5.4. MODULE
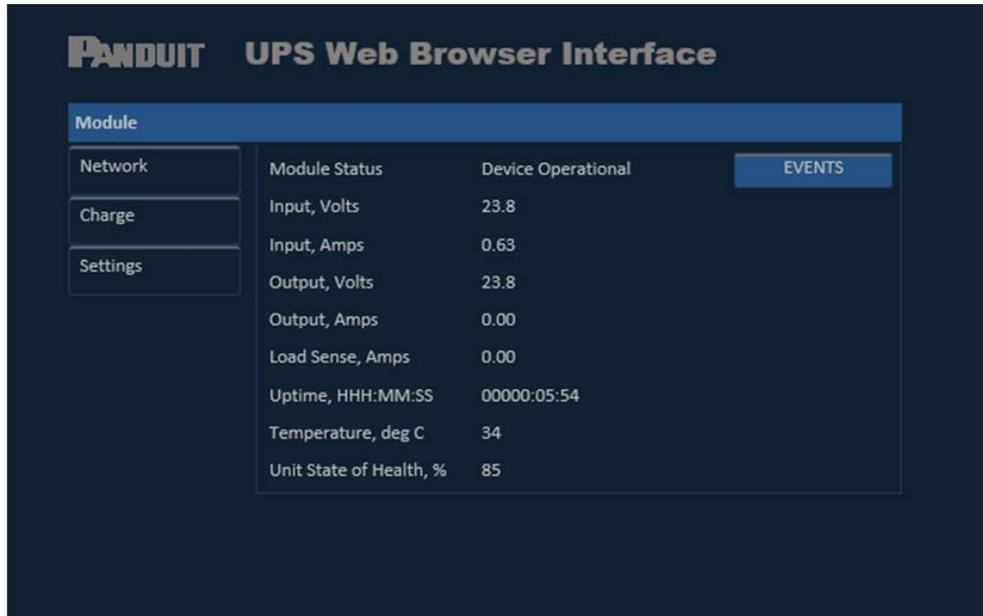
Figure 9: Module Web Page

This is the home screen of the web browser interface. **NOTE**: No username or password authentication are required to view the Module page or Event log.

5.4.1. Module Status

The Module Status indicates the general state of the UPS and closely follows the front panel MOD indicator. A table of Module Status states is shown below. Minor Faults may be corrected by a Reset (see RESET Section 5.6.2 or 6.2) unless specified in the table below. Major faults may be corrected by using the Restore Factory Defaults (See RESTORE FACTORY DEFAULTS Section 6.3 or RESTORE Section 5.6.9) unless specified in the table below. If normal operation does not resume after Restore Factory Defaults, contact Panduit for technical support or service.

Table 3: Module Status

Status	Description
Device Operational	If the device is operating correctly, the Module Status in the WBI will be set to this status. The corresponding MOD LED indicator shall be steady green.
Minor Fault	If the device has detected a recoverable minor fault, the Module Status in the WBI will be set to this status. The corresponding MOD LED indicator shall be flashing red.

NOTE: An incorrect or Inconsistent configuration is considered a minor fault. |
| Major Fault | If the device has detected a non-recoverable major fault, the Module Status in the WBI will be set to this status. The corresponding MOD LED indicator shall be steady red. |
| Self-Test | While the device is performing is power up testing, the Module Status in the WBI will be set to this status. The corresponding MOD LED indicator shall be flashing green/red. |

WARNING: Over Temperature (Device Operational)	If the device is in an environment that is above the operating temperature, the Module Status in the WBI will be set to this status. The corresponding MOD LED indicator shall be flashing red. This warning is a notification to take the action by cooling down the environment that the UPS is in or else the UPS will permanently shut down.
WARNING: End of Service Life (Device Operational)	If the device is nearing its End of Life, the Module Status in the WBI will be set to this status. The corresponding MOD LED indicator shall be flashing red. This warning is a notification to take the action to order a new replacement UPS and install before the UPS transitions to End of Life.
End of Life	If the device is at End of Life, the Module Status in the WBI will be set to this status. The corresponding MOD LED indicator shall be steady red. The UPS will continue to allow pass-through power but will no longer provide backup power.

5.4.2. Input, Volts and Input, Amps

"Input, Volts" displays the DC Voltage present on the Input (INP 1+, INP 2-) terminals.
"Input, Amps" displays the total DC Current being used by the UPS and Output Load.

5.4.3. Output, Volts and Output, Amps

"Output, Volts" displays the DC Voltage present on the Output (OUT 5+, OUT 6–) terminals. When Input Power is present, this may be a slightly lower value than Input Volts due to small losses within the UPS circuitry. When Input Power is not present, this value will be the nominal Output Voltage supplied by the UPS from its internal stored energy.

5.4.4. Load Sense, Amps

"Load Sense, Amps" displays the approximate current draw through the optional accessory Load Sense Module (LSM) when connected in series with the power supply and the load. If the LSM is not being used, this value will typically be near zero.

5.4.5. Uptime, HHHHHH:MM:SS

"Uptime" displays elapsed time since the UPS has started operating with "H", "M", and "S" denoting hours, minutes, and seconds. Up to a maximum of 999999 hours will be shown.

5.4.6. Temperature, deg C.

"Temperature" displays the temperature inside the UPS enclosure. For normal operating conditions, the Temperature displayed will be about 10 degrees higher than the UPS ambient temperature (outside its enclosure).

5.4.7. State of Health

"State of Health" (SOH) is based on the capacitance of the ELDC cells. A capacitance measurement will automatically run once a week. The value displayed in the SOH field is the percentage of life left on the UPS. A warning will be set in the Module Status field on this page when the UPS is **approaching** end of life. It is recommended to purchase a replacement UPS when the "WARNING: End of Service Life" alert

has triggered. If the SOH reaches 0%, the UPS will allow pass-through power but will no longer provide backup power.

5.4.8. Events

Clicking the "EVENTS" button will access the Event Log.

5.4.8.1. EVENT LOG

The event log records internal UPS events. UPS conditions are checked on power up and any required log entries are added to the log. Additional entries are added as the conditions (events) occur. A time-stamp reflecting the UPS up-time are pre-pended to each log entry. If an error code is available, it will also be pre-pended to the log entry.

The "End of Service Life" warning is captured in the event log. This is a pre-warning to notify the user that the UPS is approaching its End of Life. When this event is triggered, the user should order a replacement UPS. After receiving the replacement UPS, it is recommended to schedule a maintenance time to replace the UPS producing this warning before the SOH field has reached 0%. Failure to replace the UPS before SOH reaches 0% will result in loss of UPS backup power.

The "End of Life" event is captured in the event log. This message notifies the user that the UPS is no longer able to support backup power. When this event has triggered, the user should replace this UPS as soon as possible as the system is operating without backup power.

The "Cell Over-Voltage, Cell(s) #cc Voltage(s) v.v" failure is captured in the event log. The entry indicates the cell(s) that have an over-voltage and the value of voltage that appeared on the cell(s). This is typically a hardware fault condition. The UPS will continue to provide pass-through power, but the UPS backup power will be permanently disabled. Contact Panduit Customer support for the next steps to be taken.

The "Cell Over-Temperature, tt°C" failure is captured in the event log. The excess temperature experienced by this UPS has damaged the ELDC capacitors in the UPS. This is a notification to the user that the UPS is no longer able to support backup power. When this event has triggered, the user should replace the UPS as soon as possible as the system is currently operating without backup power.

The "UPS Temperature Above Safe Limits, tt°C" warning is captured in the event log. The unsafe temperature experienced by the UPS is close to damaging the ELDC capacitors in the UPS. The user should reduce the ambient temperature around the UPS to avoid over-temperature failure.

The "UPS Temperature Return to Safe Limits, tt°C" event is captured in the event log. The unsafe temperature experienced by the UPS has fallen into the safe range for the UPS.

The event log also records events pertaining to the automatic cell-balancing. The event log records when the automatic cell-balancing routine is activated or de-activated, when an under or overvoltage condition is detected, or when bleed resistors are turned on or off (bleed resistor are used to balance the cells). No action is required because of cell balancing. Cell balancing is a common event that happens throughout the life of the UPS to maintain consistency across the cells and prolong the life of the UPS.

The Event Log stores a maximum of 1,000 sequential events. Oldest events are deleted when the Event Log reaches maximum capacity. The below screen capture illustrates some examples of the event log entries that the user may see.[6]

Figure 10: Even Log Web Page

5.4.8.2.   REFRESH

Clicking the "REFRESH" button provides an explicit command to retrieve the latest updates from the event log.

5.4.8.3.   RETURN

Clicking the "RETURN" button will return to the Module page.

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[6] The event log is cleared on a UPS reset, a UPS restore, and total loss of the UPS backup power in conjunction with loss of input power.

5.5. USERNAME AND PASSWORD

Figure 11: User Login Pop-up Window

A Username and Password is required to access the Network, Charge, and Setting pages on the UPS. The default Username is "Panduit UPS" and the default password is the device serial number. The device serial number may be obtained from the label on the side of the UPS (refer to Figure 5: Reset Button and Serial Number). It is strongly recommended to change the Username and Password from the factory default values after installation and first use (refer to SETTINGS Section 5.6. If the Username and/or Password is lost or forgotten, it can be restored to the factory default values by using the Reset Switch as described in the RESTORE FACTORY DEFAULTS Section 6.3.

The system will automatically terminate a login session after 30 minutes of inactivity.

5.6. SETTINGS
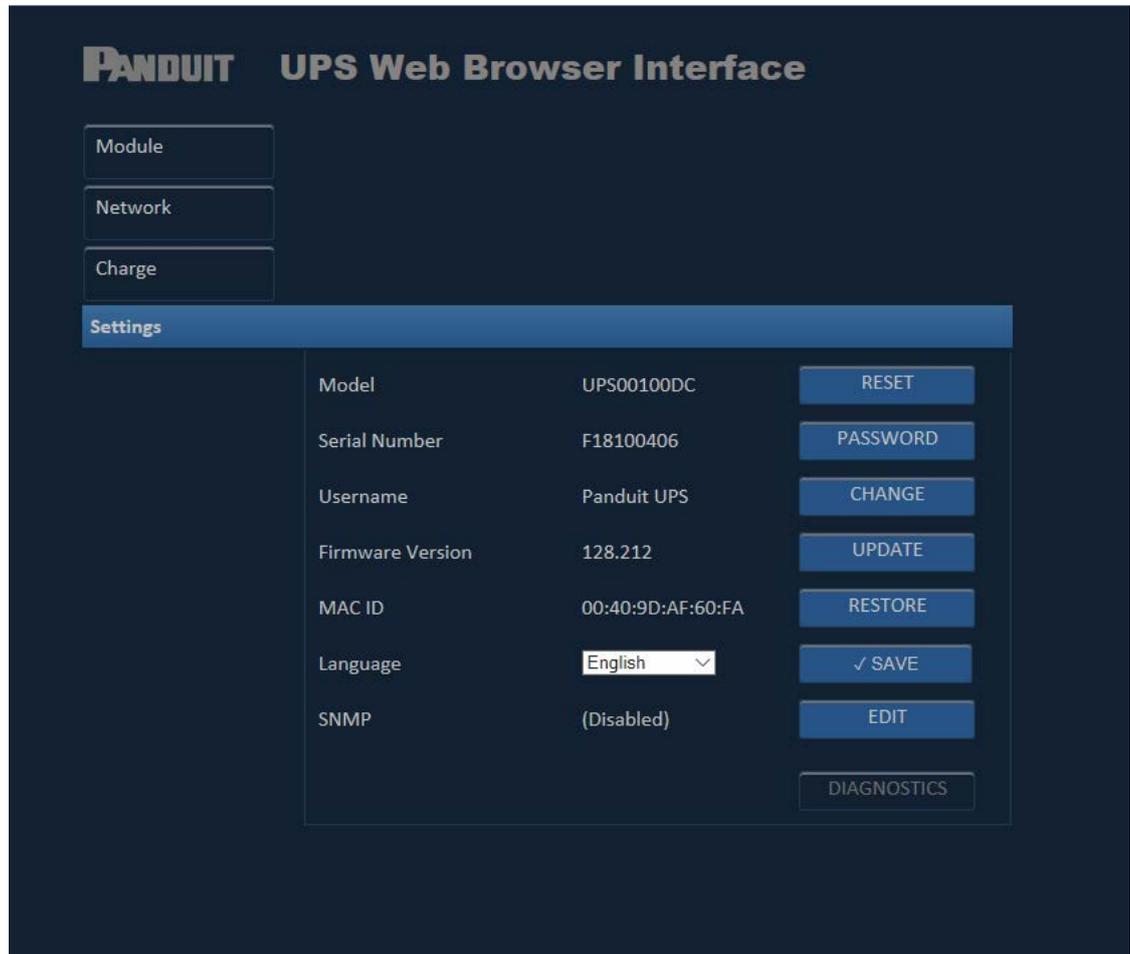
Figure 12: Setting Web Page

The "Settings" page displays settings unique to this UPS. Some of these values may be changed from factory default to values that are more meaningful to the user. This section provides the steps for changing these values. All values may be changed by the user except for Model, Serial Number, and MAC ID values.

5.6.1. MODEL

The Model displays the Model Number of this UPS device. The UPS00100DC is the model number of the 100 Watt UPS that has been received with this User Manual. This Model number is not changeable by the user.

5.6.2. RESET

The "Reset" Button is used to restart the UPS. Reset the UPS to clear a Major Fault. A reset must also be executed after a change to Network Settings, after a Restore to Factory Defaults, or after a Firmware Update.

The Reset will also impact the following items:
- o The Uptime (Elapsed Time) will be reset to zero
- o The Event Log will be cleared

The below confirmation window will pop-up when this "RESET" button is clicked. Click the "RESET" button to continue or click the "CANCEL" button to cancel the reset.
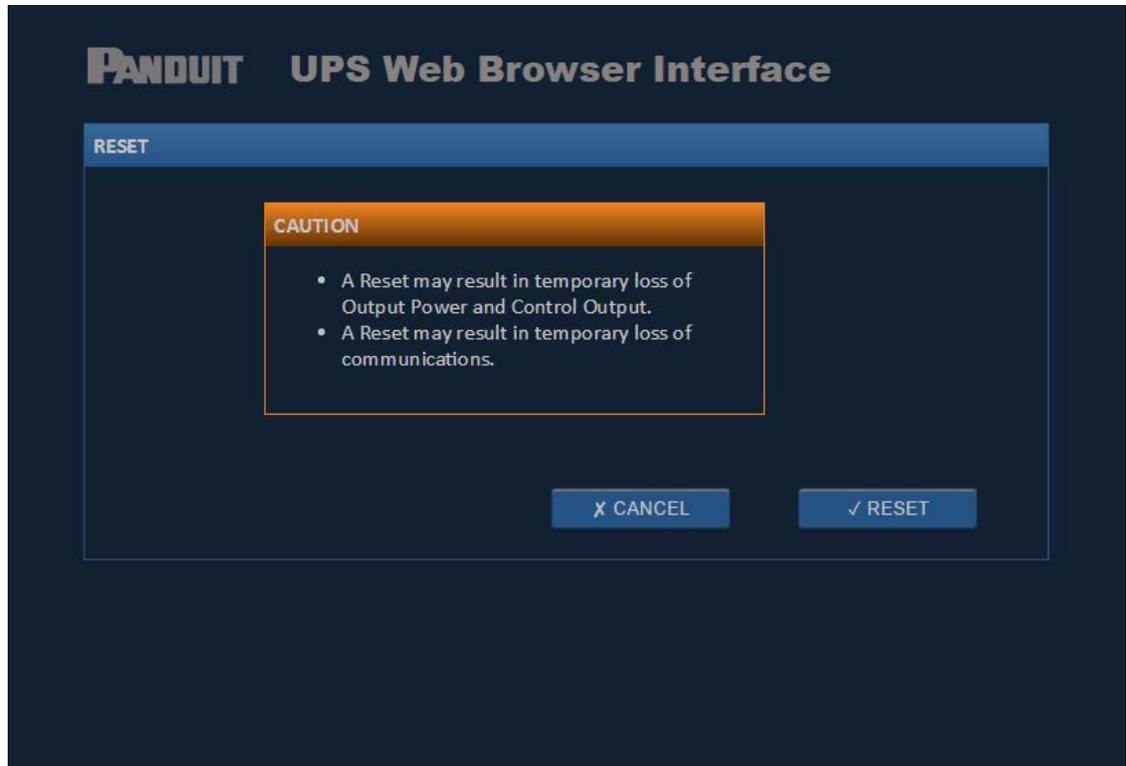
Figure 13: Reset Pop-up Window

5.6.3. SERIAL NUMBER

The Serial Number displays the Serial Number of this UPS device that is printed onto a label on the side of the unit. The Serial Number is also used as the factory default value for the Password. This Serial Number is not changeable by the user.

5.6.4. PASSWORD

Clicking the "PASSWORD" button allows the user to change the default Password. A pop-up window (shown below) queries the user to enter the new password twice to confirm the new password.
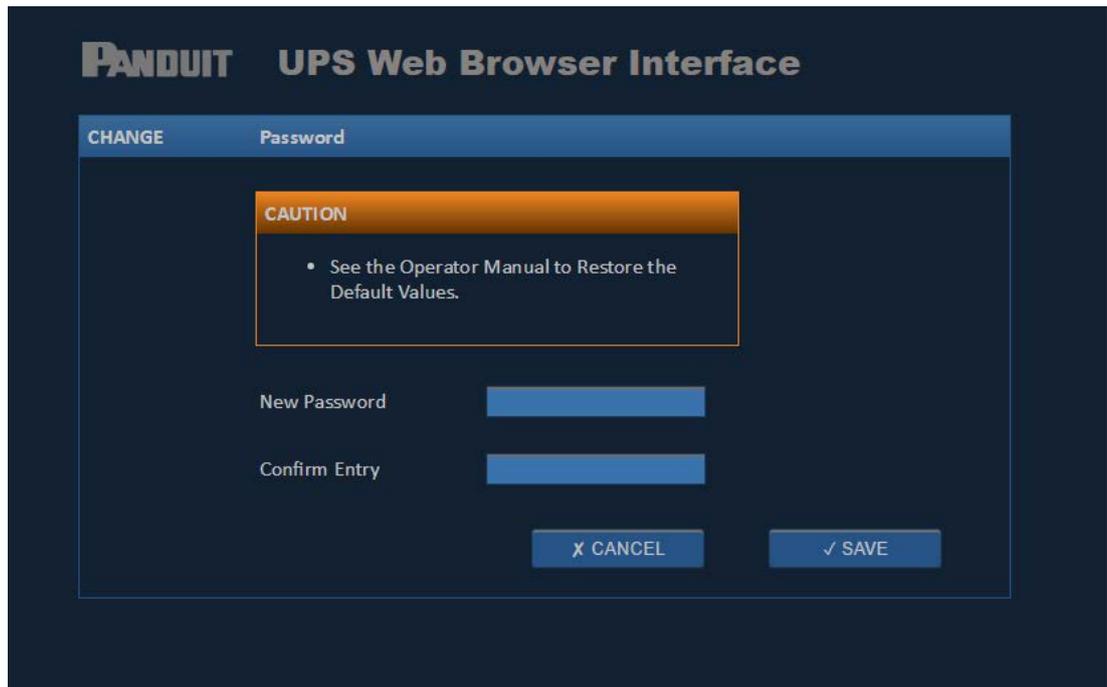
Figure 14: Password Change Pop-up Window

5.6.5. USERNAME

The Username displays the Username assigned to the unit. The factory default Username is "Panduit UPS" (case sensitive). The Username may be changed by the user. Clicking on the "CHANGE" button allows the user to change the default Username. A pop-up window (shown below) queries the user to enter a new Username. Click in the text box and an "X" will appear at the end of the text box. Clicking on the "X" will clear the current Username. Start typing the new Username in the text box. Click the "SAVE" button to change the Username for this unit. Click the "CANCEL" button to cancel this change and go back to the current Username.
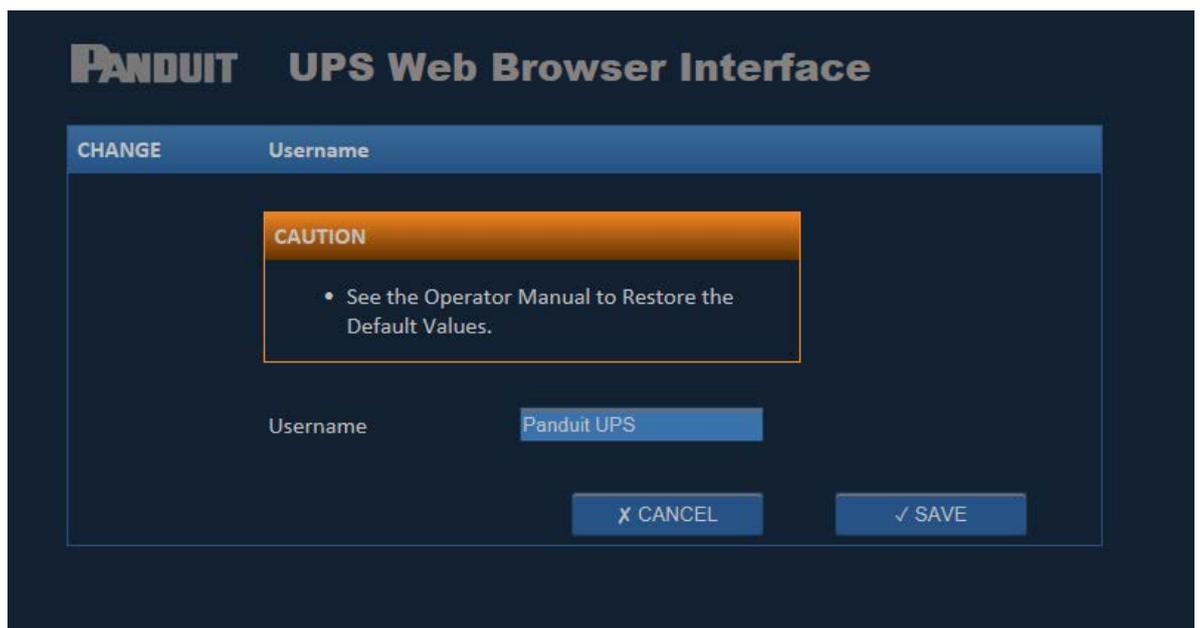
Figure 15: Username Change Pop-up Window

5.6.6. FIRMWARE VERSION

The firmware version is displayed in the "Firmware Version" field. The firmware version value is automatically updated when the firmware in the UPS is updated. To check for firmware updates, visit Panduit.com, click Support, and follow the links to the UPS Firmware Update page.

5.6.7. UPDATE

Clicking on the UPDATE button will pop up a window to prompt the user to locate an image file for uploading, as shown below. Click the hyperlink "www.panduit.com" in this pop-up window. This will open an Web Browser Window to the Panduit Home page. From there, click the "Support" pulldown on the upper right of the page then hover over "Download Center" and select "Industrial Uninterruptible Power Supply (UPS) Downloads". Scroll down to "Latest UPS Firmware" section and click the "Download Firmware Upgrade (BIN)" hyperlink. A pop-up window will prompt the user for the next action to be taken. Click the "^" in the "Save" button and select "Save As". Select the location on the PC that the file should be saved in and note the location for later use. Exit out of the Panduit Download window.

In the UPS Update pop-up window click the "Browse…" button. Browse to the location that the "image.bin" file was downloaded to and select the "image.bin" file. Then click the "Open" button. The link to the "image.bin" file on the PC will appear in the "Locate File" text field. Click the "UPDATE" button to update the firmware on the UPS. Click the "CANCEL" button to cancel the firmware update. After performing a firmware update, the user should immediately perform a RESET.
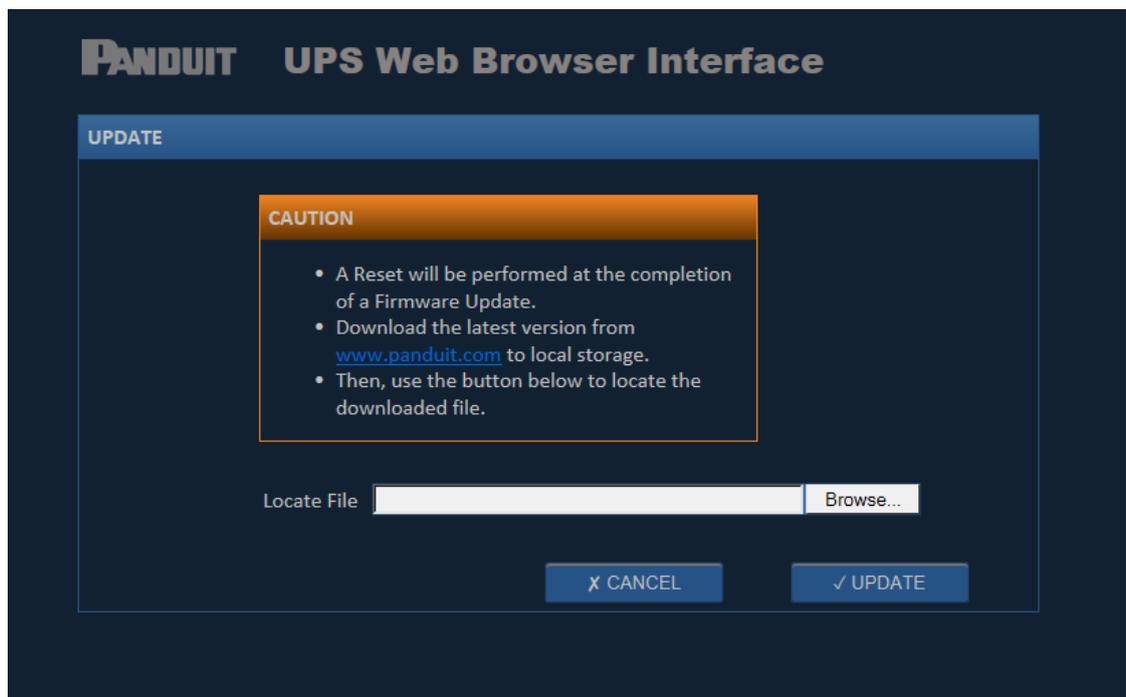
Figure 16: Firmware Update Pop-up Window

5.6.8. MAC ID

The MAC ID (Ethernet unique address identifier) is displayed. The MAC ID is also printed on a label affixed to the side of the UPS. The MAC ID is not changeable by the user.

5.6.9. RESTORE

Clicking on the RESTORE button will pop-up the below window that prompts the user to confirm before setting parameters back to their factory default values. See RESTORE FACTORY DEFAULTS Section 6.3 in

this document for the default settings. Click the "RESTORE" button to restore the UPS to factory defaults. Click the "CANCEL" button the cancel the operation and keep the current settings. After a Restore to Factory Defaults, the user should perform a RESET.

Figure 17: Restore Pop-up Window

5.6.10. LANGUAGE

The current Language for the WBI is displayed. Clicking on the down-arrow displays a menu of available Languages. Clicking on the desired language and then save by clicking on the "SAVE" button immediately to the right of the language selected. After changing the Language, the user should perform a RESET for the new Language to take effect.
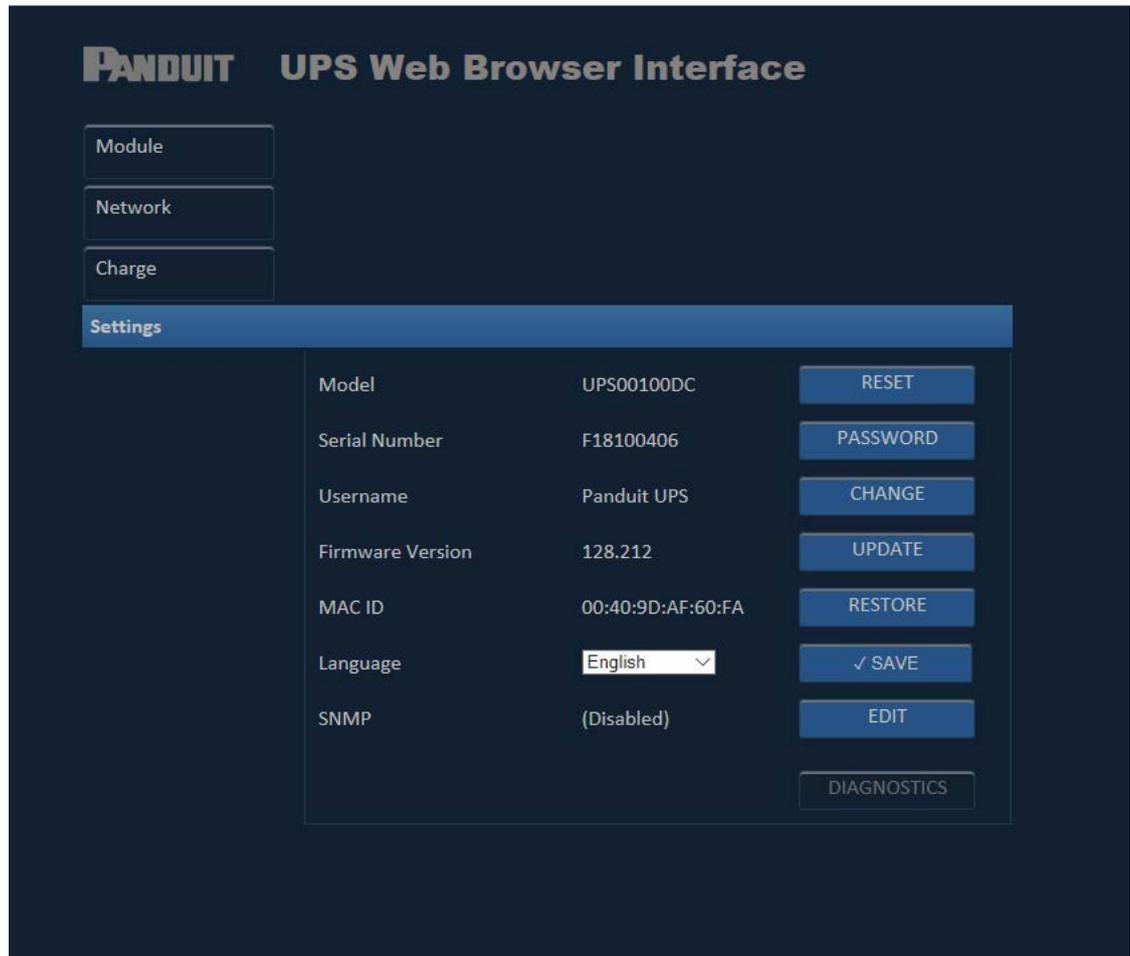
Figure 18: Settings Web Page

5.6.11. SNMP

By factory default, the SNMP agent is disabled. To enable the SNMP agent, click the EDIT button next to the version of SNMP you want to support. Clicking on the SNMP "EDIT" button will pop-up a window to enable the SNMP agent.

NOTE: Only qualified personnel with a background in networking (i.e. Network Administrator, etc.) should be changing these SNMP parameters.
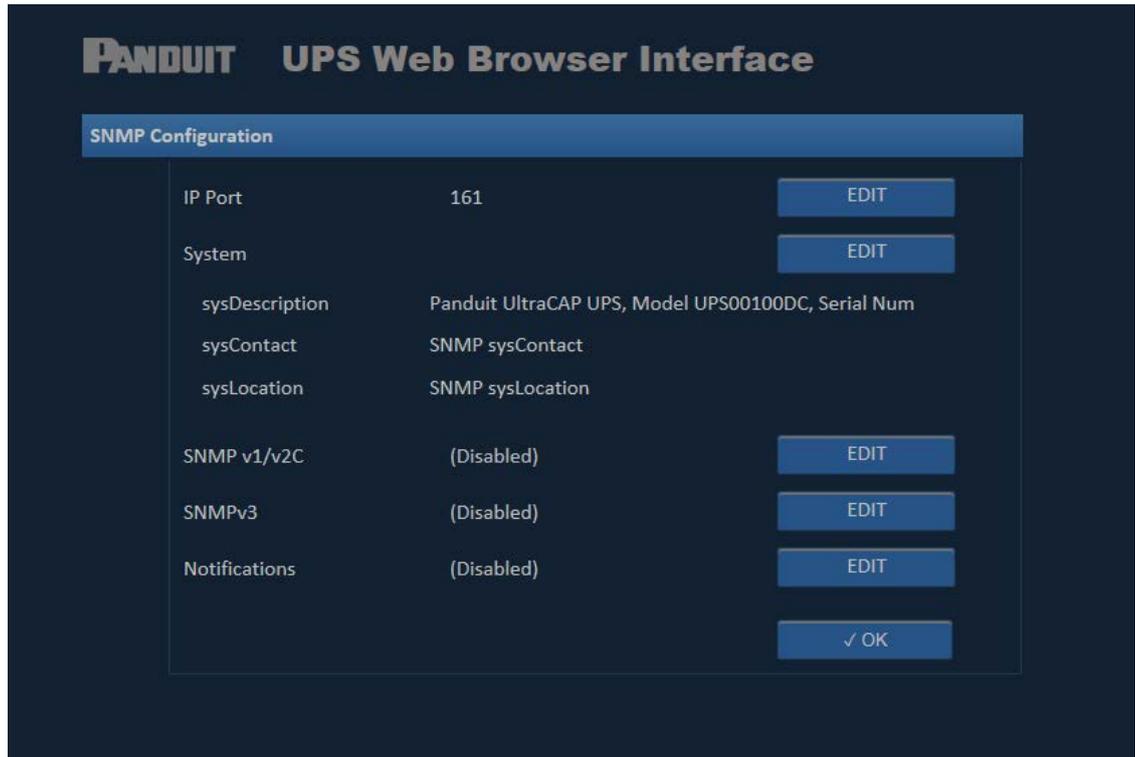
Figure 19: SNMP Configuration Web Page

5.6.11.1. IP (SNMP AGENT) PORT

Clicking on the IP Port "EDIT" button will pop-up a window to change the IP Port (referred to as the SNMP Agent port) from the default value of 162. Click the "SAVE" button to update the port value. Click the "CANCEL" button to cancel the updates. After performing the update to the port value, the UPS must be restarted.

Figure 20: SNMP IP Port Change Pop-up Window

Clicking the "SAVE" button will restart the agent. The WBI will update once the restart is complete.
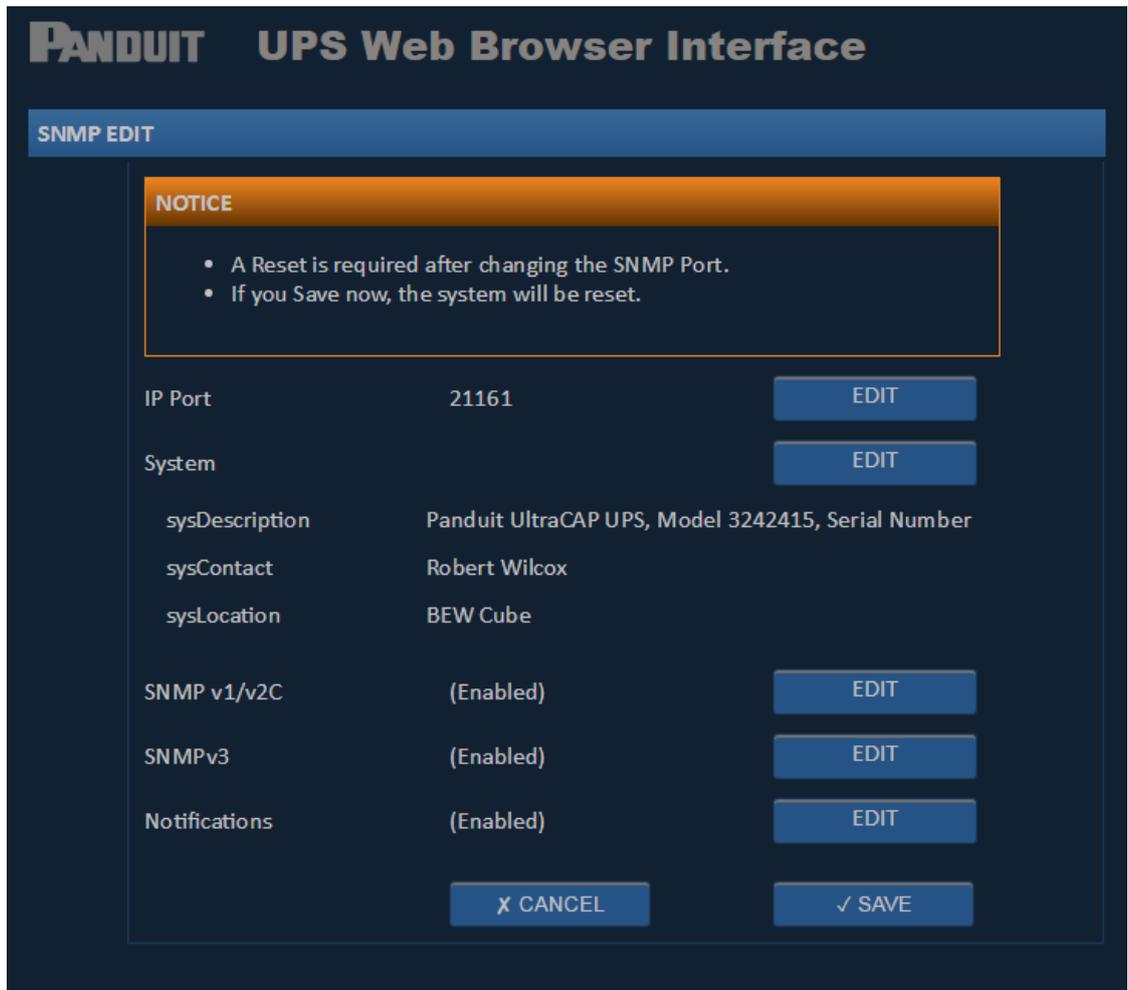
Figure 21: SNMP Configuration Web Page (With IP Port Changed)

5.6.11.2. SYSCONTACT or SYSLOCATION

The sysLocation and sysContact values are used by network managers to indicate where the device is located and who is responsible for managing it. Clicking on the System "EDIT" button will pop-up a window to change the System Contact and System Location from the default values of SNMP sysContact and SNMP sysLocation. Clicking in the text field of each value will cause an "X" to appear. Clicking on the "X" will clear the current value. Type in the new value for these fields. Click the "SAVE" button to update these values. Click the "CANCEL" button to cancel the updates.
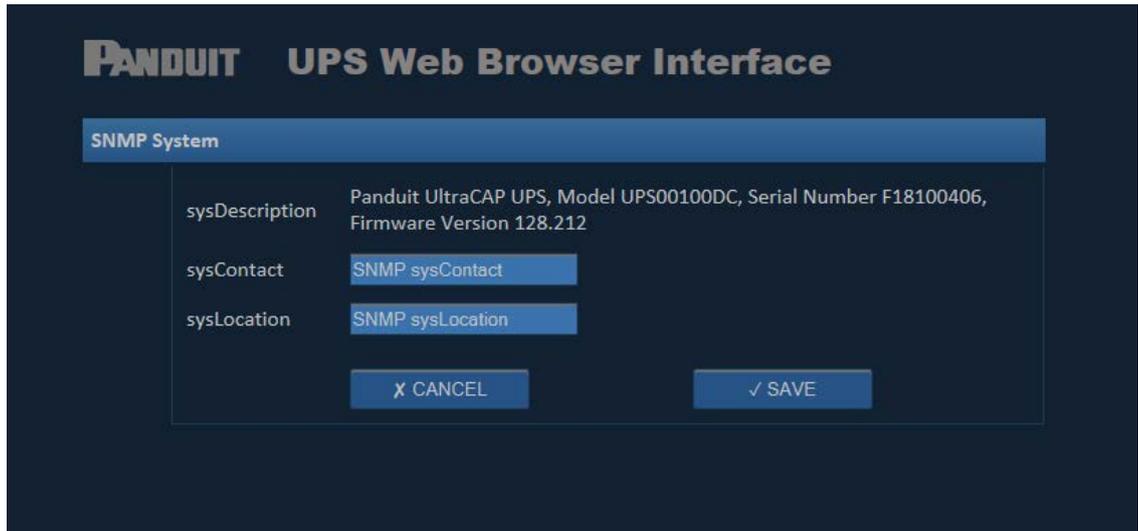
Figure 22: SNMP System Pop-up Window

5.6.11.3. SNMPv1 and SNMPv2C

Clicking on the SNMP v1/v2C "EDIT" button will pop-up a window to add and remove community names with permissions. Enter a Community Name then set the read/write/trap access appropriately. If more than one user is needed, click the "ADD" button. If users need to be removed, click the "REMOVE" button next the user being removed. See the image below for an example creating a public and private community string for the UPS. Click the "SAVE" button to update the SNMP community names and permissions. Click the "CANCEL" button to cancel the updates.
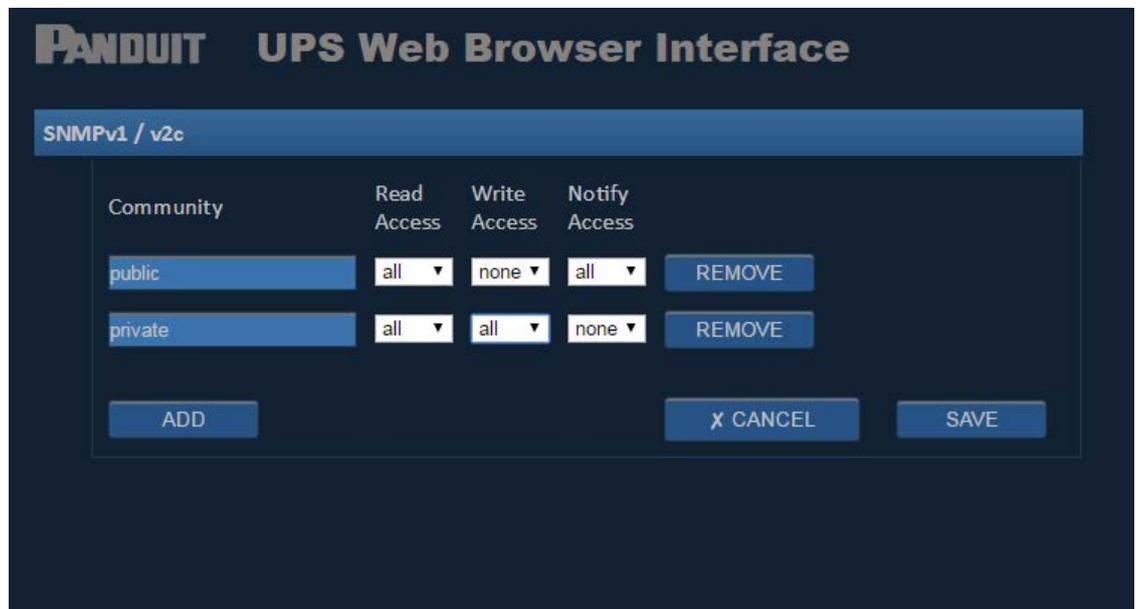
Figure 23: SNMPv1/v2C Edit Pop-up Window

5.6.11.4. SNMPv3

Clicking on the SNMP v3 "EDIT" button will pop-up a window to add and remove user names with permissions, authorizations, and passwords. Click the "SAVE" button to update the SNMP user names, permissions, authorizations, and passwords. Click the "CANCEL" button to cancel the updates.
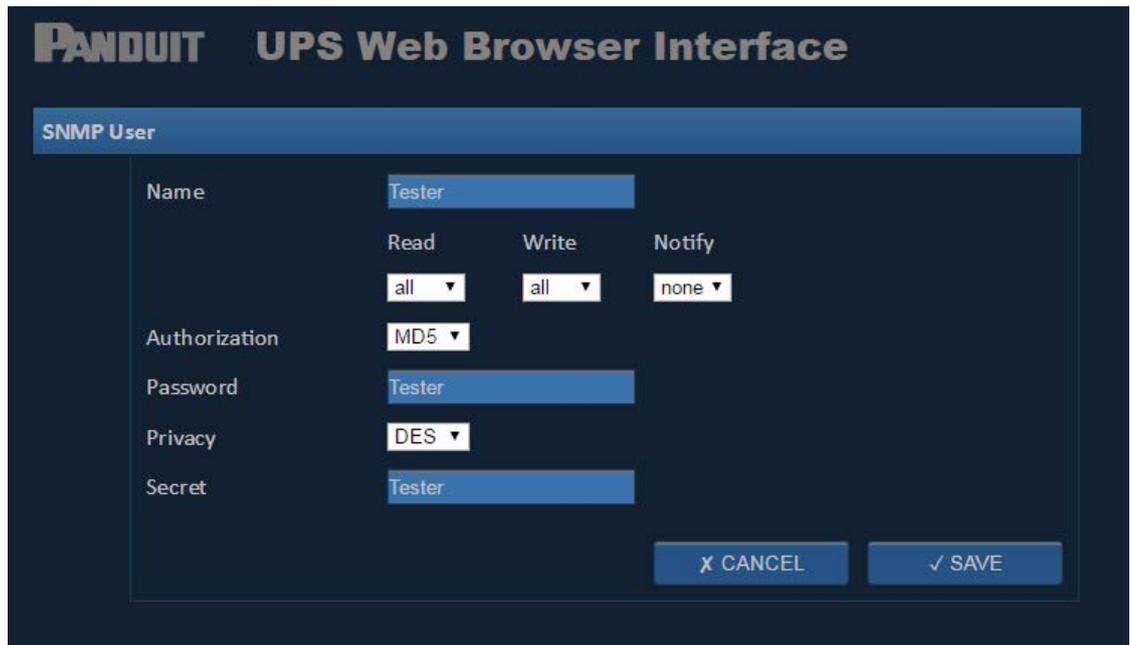
Figure 24: SNMPv3 Edit Pop-up Window

5.6.11.5. SNMP TRAPS (NOTIFICATIONS)

SNMP Notifications are often referred to as SNMP Traps. Clicking on the Notification "EDIT" button will pop-up a window to add and remove IP Addresses that have been identified to receive the traps. The window is used to setup the IP Address of the SNMP manager that will be receiving the trap notifications, the port (default SNMP Trap port is 162) then, whether the SNMP trap should be sent as SNMP v1, v2c, or v3, the user type that the trap should be sent as (default is public) and to enable or disable the transmission of the traps. See below for an example setup that will send SNMPv2c traps. Click the "SAVE" button to update the Notification parameters. Click the "CANCEL" button to cancel the notification updates.
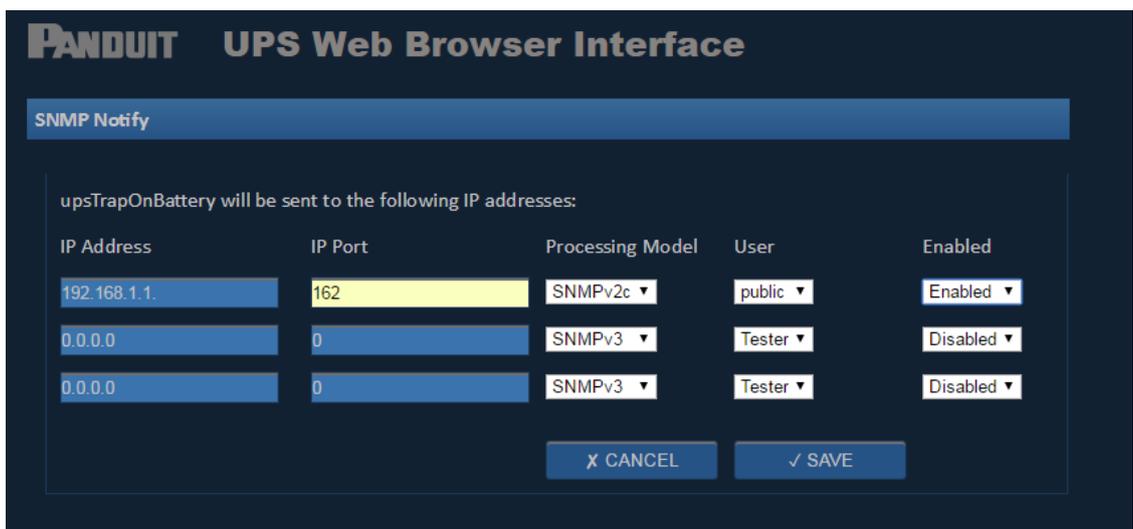
Figure 25: SNMP Trap (Notification) Pop-up Window

5.7. NETWORK
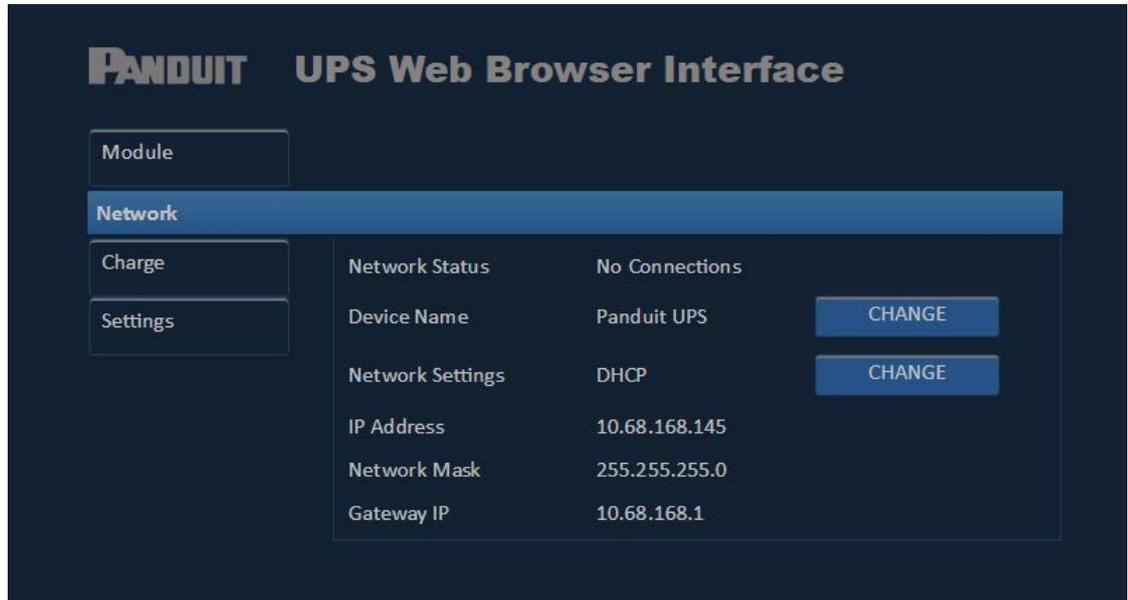
Figure 26: Network Web Page

The network tab allows the Device Name and Network settings to be changed.   The Device Name displays the Device Name assigned to the unit. The factory default Device Name is "Panduit UPS". The Device Name may be changed by the user. Clicking on the Device name "CHANGE" button allows the user to change the default Device Name. A pop-up window (shown below) queries the user to enter a new Device Name. Click in the text box and an "X" will appear at the end of the text box. Clicking the "x" will clear the current Device Name from the text box. Type the new Device Name in the text box. Click the "SAVE" button to change the Device Name for this unit. Click the "CANCEL" button to cancel this change and go back to the current Device Name.
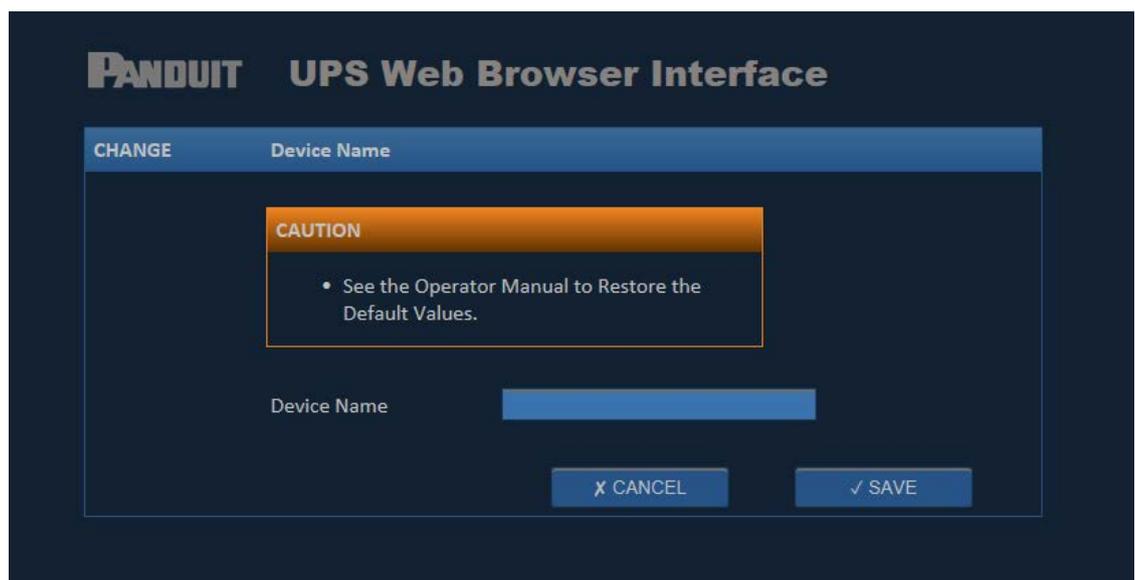
Figure 27: Device Name Change Pop-up Window

The Network Settings displays the current network setting on the unit. The factory default Network Setting is "DHCP". The device's Network Setting may be changed to "Static".

NOTE: It is recommended that only a qualified person with a network background make changes to these network settings. When set to DHCP the UPS will sent out a request to get an IP Address from the DHCP server on the Ethernet network. The DCHP server will assign a dynamic IP address to this UPS upon receiving this request. If the Network Setting is change to "Static" then the user must manually assign an IP Address to the UPS.

CAUTION: No two devices on an Ethernet Network may have the same IP address.

Clicking the Network Settings "CHANGE" button allows the user to change the network setting between "DHCP" and "Static". The pop-up window (shown below) queries the user to select the new Network Setting. A check-mark in the "SELECT" box indicates the current network setting. Click the DHCP or STATIC "SELECT" button to change to that respective network setting. If DHCP is selected, no other fields on this page need to be completed. Click the "SAVE" button to change the network settings to DHCP for the unit. If STATIC is selected then the user must enter the appropriate IP address, Network Mask, and Gateway IP Address. These address setting are unique to the individual user's network. If the address setting is not known, cancel out of this change and obtain these settings before attempting this change again. Click the "CANCEL" button to cancel this change and go back to the current Network Settings. A reset is required after changing the network setting.
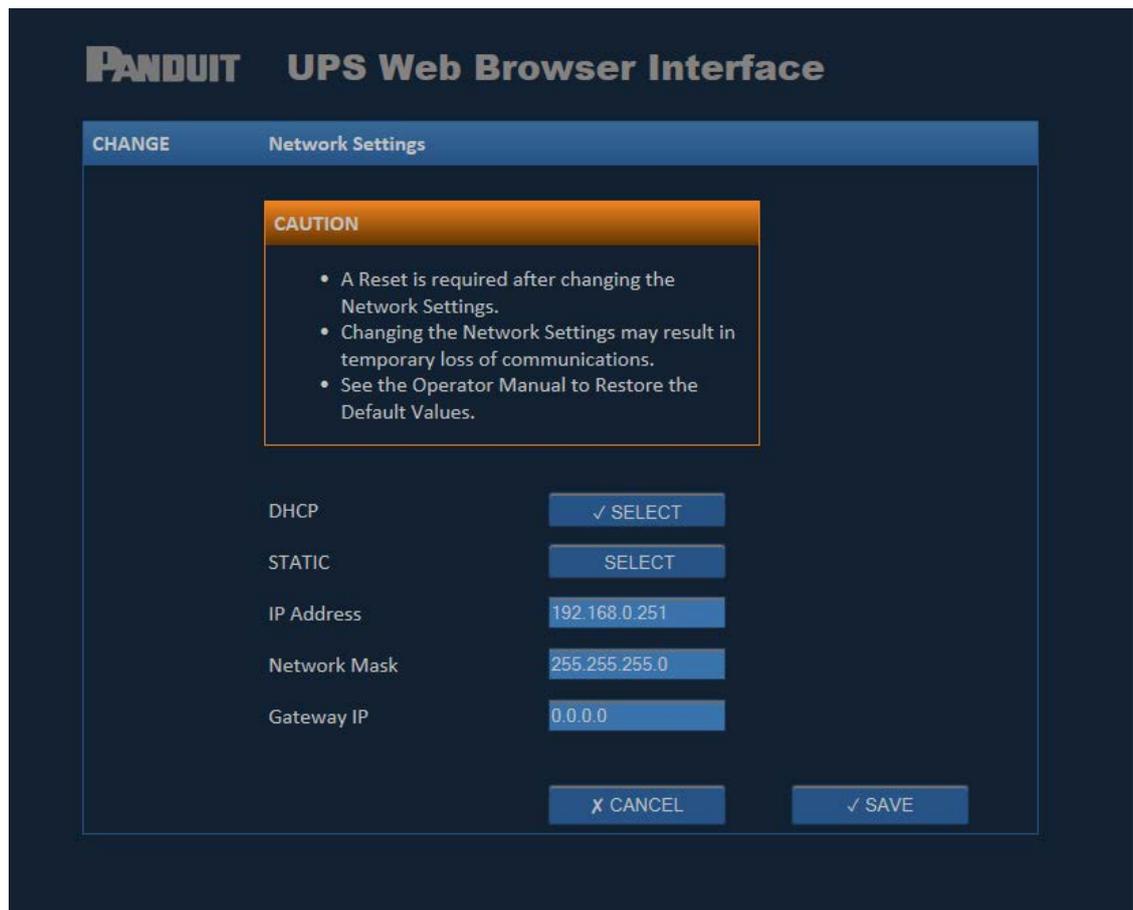
Figure 28: Network Settings Change Web Page

5.8. CHARGE
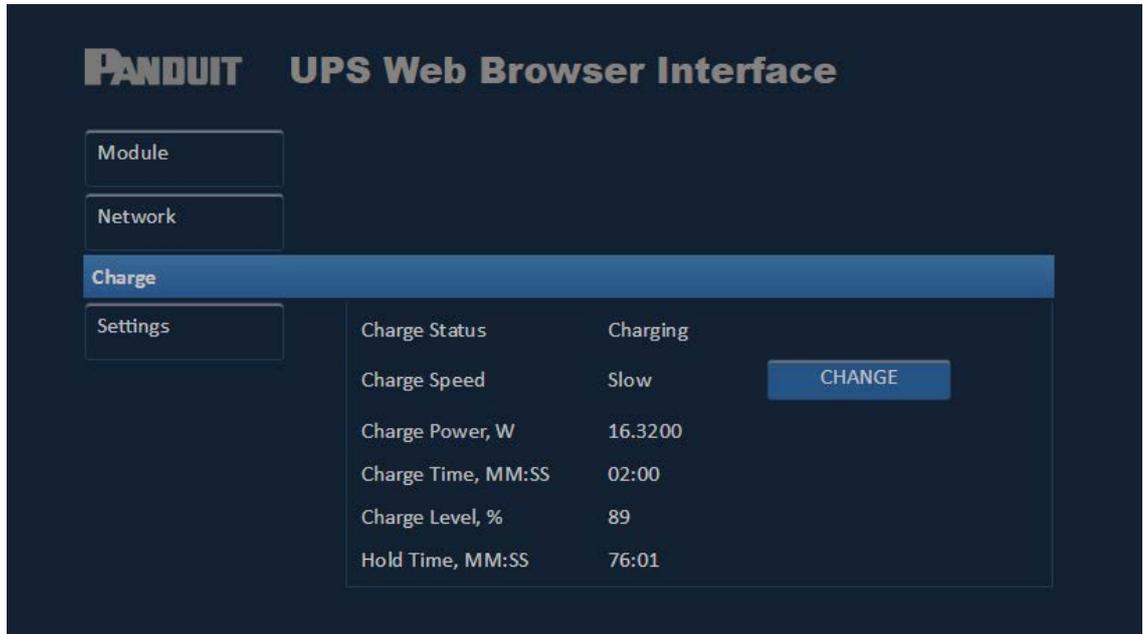
Figure 29: Change Web Page

5.8.1. CHARGE STATUS

The Charge Status indicates the state of the internal energy storage of the UPS, closely follows the front panel CHG indicator. The following table shows the charge status based on UPS input and output conditions.

Table 4: UPS Charge Status

Input	Output	Charge Status
0 VDC	0 VDC	N/A
24 VDC	24 VDC pass through	Charging
24 VDC	24 VDC pass through	Charged
0 VDC	18-22 VDC backup	Discharging
0 VDC	0 VDC	Discharged

5.8.2. CHARGE SPEED

The Charge Speed indicates the current charge speed setting ("Slow" or "Fast"). The "Fast" charge speed results in the fastest charge.

Table 5: UPS Charge Speed Power and Time

Charge Speed	Maximum Charge Power	Approximate Charging Time
Fast	31.8 Watts	10.5 minutes
Slow	22.5 Watts	12.5 minutes

The factory default Charge Speed is set to "Slow" and may be changed by the user. Clicking on the Charge Speed "CHANGE" button allows the user to change the default Charge Speed setting. A pop-up window (shown below) queries the user to select the new Charge Speed setting. A check-mark in the "SELECT" box indicates the current Charge Speed setting. Click the Fast or Slow "SELECT" button to change Charge Speed setting. Click the "SAVE" button to change the Charge Speed setting for the unit. Click the "CANCEL" button to cancel this change and go back to the current Charge Speed setting.
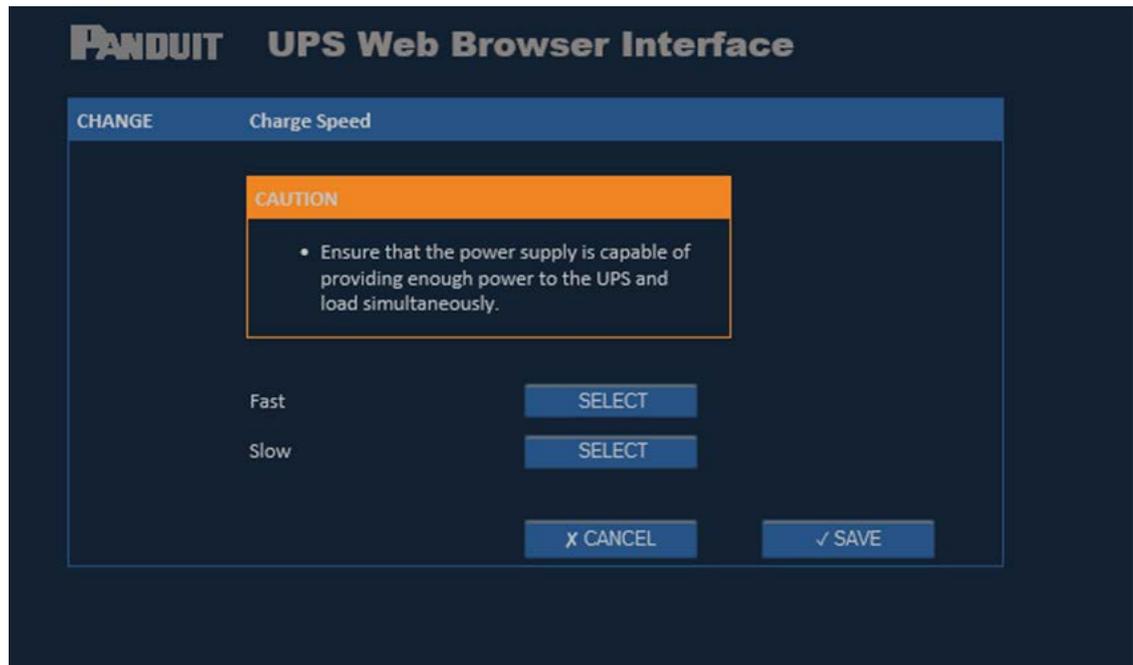
Figure 30: Charge Speed Change Pop-up Window

5.8.3. CHARGE POWER

"Charge Power, W" displays the charge power in Watts used by the UPS when it is charging.

NOTE: Charge Power is only updated during charge mode.

5.8.4. CHARGE TIME

"Charge Time" estimates the time it takes to charge the UPS to full charge given the current Charge Level and the Charge Speed setting.   The UPS implements cell-balancing as described in BACKGROUND Section 4.1. However, the estimated charging time is updated continuously; a new charge time will be calculated based on the energy used for cell-balancing.

NOTE: Charge time is only updated during charge mode.

5.8.5. CHARGE LEVEL

"Charge Level" represents the percentage of energy stored in the capacitors. This value should be near 100% when fully charged and near 0% when fully discharged.

5.8.6. HOLD TIME

"Hold Time" is estimated based on the energy stored in the cells, the efficiency of energy conversion, and the load power consumption. The estimated Hold Time is calculated whether the UPS is in the charging or discharging state and is updated continuously. Note: If the load power consumption changes, the estimated hold time is automatically updated to reflect the change in load power consumption.

NOTE: If the UPS is used as a redundant power supply for a load, a Load-Sense Module (LSM) is required for accurate Hold Time calculation.

6. OPERATION

6.1. LOAD SUPPORT

The UPS is designed to draw a maximum input current of 156 Watts (100W plus 56 Watts additional for fast charge). The power supply connected to the UPS must support the load as well as the charging power for the energy storage elements. Examples of input loads:

- 5.57A at an input voltage of 28 VDC (156W)
- 6.5A at an input voltage 24 VDC (156W)
- 3.57A at an input voltage of 28 VDC (100W)
- 4.17A at an input voltage 24 VDC (100W)

The charging time may be longer for the first charge cycle after the unit has been sitting unpowered for a long period of time, due to total depletion of charge voltage on the ELDC cells. If the maximum load power listed is exceeded, the UPS will automatically disable the output and transition into a minor fault state as described in MOD LED, Section 7.1.1.

Note that the UPS Hold Time will be reduced as the ELDC cells age, but the minimum Hold Time will be supported throughout the lifetime of the UPS. The estimated UPS lifetime is based on the operating temperature of the UPS. Figure 6: DIN Rail Installation below shows the Estimated UPS Life with respect to the operating ambient temperature of the UPS.

Table 6: Estimated UPS Life Based on Temperature

UPS Ambient Temperature (^{o}C)	Estimated UPS Life (years)
20	20 years
30	11 years, 3 months
35	8 years, 6 months
40	5 years, 9 months
45	4 years, 6 months
50	3 years, 3 months
55	2 years, 6 months
60	1 year, 9 months

6.2. RESET

The UPS can be reset by using a standard #1 sized paper clip to depress the recessed Reset Button accessible from the bottom of the unit. With the power "ON", depress and hold the Reset Button until the LEDs turn "OFF". The LED initialization sequence begins after releasing the Reset Button. See Figure 5: Reset Button and Serial Number for the location of the Reset Button.

6.3. RESTORING FACTORY DEFAULTS

The user settable parameters can be restored to factory default values by using a standard #1 sized paper clip to depress and hold the recessed reset button accessible from the bottom of the unit. Turn unit OFF. Depress the button and hold while switching the power ON. Release the button after the LED turns off and the LED initialization sequence starts. Refer to ETHERNET Section 5.1 for the list parameters and their factory default values.

6.4. GENERAL OPERATION

Once the UPS is installed per Sections 4 and 5, power may be applied to the Primary Power Supply and the Secondary Power Supply if present. The UPS can then be switched to the "ON" position. If the input voltage is too high, the UPS will fault and the MOD LED flashes red. Switch the unit to the "OFF" position, correct the issue and toggle the UPS power switch to the "ON" position.

After the unit is switched ON, the "Charge Status - CHG" LED should flash green indicating that the unit is charging. Once the unit is fully charged, the "Charge Status - CHG" LED will illuminate solid green. The unit is now ready to provide backup power to the load in the event of an AC power failure.

If the output of the UPS is overloaded the UPS will fault and flash the MOD status LED red. Switch the unit to the "OFF" position and check that the load does not exceed to the maximum load power.

When input power is lost, the UPS will provide DC power to the load until the cells are depleted. The "Charge Status - CHG" LED will flash red indicating the unit is being discharged.   When the unit is fully discharged, the "Charge Status - CHG" LED will illuminate solid red. The UPS will disconnect from the load when it is no longer able to provide backup power. The unit will be accessible through the WBI as described in Section 5 for approximately three minutes after it is no longer supplying power to the load. When the Power Supply start providing power to the UPS, it will begin charging. The "Charge Status" LED will start blinking green until the UPS is fully charged then transition to a solid green.

6.5. STATUS VIA PC

Status information and control of the UPS may be accessed via a web browser on a PC that is connected to the same network that the UPS is connected. The UPS will be assigned an IP address by the DHCP server running on the network or have a static or dynamic IP address depending on how the unit was configured. Consult with the network administrator as to how to determine the assigned IP address. See Section 5 for more information on running the WBI.

Notification are also sent out via SNMP. These notifications are called SNMP traps. The UPS faults, warnings and conditions are added or removed from the UPS SNMP Alarm table. The UPS SNMP Alarm table consist of the "UPS Well Know Alarm Conditions" called out in the RCF 1628 standard. The current version of the UPS can add or remove the alarms as indicated in the SNMP Traps Section 7.2. Every time an Alarm is added or removed from the UPS SNMP Alarm table a notification is sent out in the form of an SNMP trap.

6.6. STATUS VIA PLC

Status information and control of the UPS may be accomplished through Ethernet/IP communications.

EtherNet/IP™, better known as the Common Industrial Protocol (CIP™), was designed for use in process control and industrial automation applications. CIP was designed to provide consistent device access to eliminate the need for vendor specific software for configuration and monitoring of individual devices. EDS files are installed using the "EDS Hardware Installation Tool".

If RSLinx version 2.41.00 is being used, there are several EDS files that must be installed before programming the controller through RSLogix 5000 programming software. With newer versions of RSLinx, this is not necessary. To install the EDS files:

1. Locate the appropriate EDS files. EDS files are available at either of the following locations:
    - RSLogix 5000 software CD
    - www.panduit.com

    a.   Select the "Support" pulldown
    b.   Hover over "Download Center" and select "Industrial Uninterruptible Power Supply (UPS Downloads"
    c.   Scroll down on the Web page to "EtherNet/IP* and FactoryTalk** Network Support Files" Section
    d.   Each EDS file has a specific location on the web.

2. Copy all the files to a temporary subdirectory on your hard drive.
3. Use the EDS Hardware Installation tool to install the EDS files. This tool is installed with RSLinx software under the RSLinxTools directory. It is also installed with RSLogix 5000 software under the Utils directory.
    a.   Shutdown all applications that use RSLinx.
    b.   Shutdown RSLinx.
    c.   Start the EDS Hardware Installation Tool by selecting:
        Start->Programs->Rockwell Software->Tools->EDS Hardware Installation Tool.
    d.   Follow the on-screen instructions. Make sure to select Register a directory of EDS files and point to the directory you saved all the above EDS files.

7. TROUBLESHOOTING

7.1. LED STATUS INDICATORS

7.1.1. MOD LED – Module Status Indicator

NOTE: The WBI (Section 5.4.1) will contain detailed error messages. The WBI should be the first step in troubleshooting the UPS.

Table 7: UPS Module Status Indicator

MOD LED Indicator	Web UI Message	Possible Cause	Recommended Action
Steady Off	N/A	Power switch if OFF.	Toggle ON/OFF switch to the ON position.
		No power to the UPS. 24V not present on INP1+ and INP2-.	Check 24 to 28 VDC is applied to the Input Terminals. Check if terminals are tightened down on the wires.
Steady Green	Device Operational	UPS is operating normally	No action needed
Flashing Green	Standby	The UPS has not been configured	Configure the UPS via Web UI
Flashing Red	Minor Fault	Overload or short-circuited output	Reduce the load or remove the short from output pins. Turn the UPS Power Switch OFF then ON to clear the Fault.
		Inconsistent Configuration	Re-configure the UPS via Web UI or perform Restore to Factory Defaults per Section 6.3.
	Warning: Overtemperature	The UPS is being operated outside its rated temperature range	Cool the UPS environment or relocate the UPS to a cooler location.
	Warning: End of Service Life	The UPS is approaching end of life	Replace the UPS soon. Backup power is still provided.
Solid Red	Major Fault	Hardware Failure	Re-configure the UPS via Web UI or perform Restore to Factory Defaults per Section 6.3.
	Warning: End of Life	The UPS has reached end of life	Replace the UPS. Backup power is no longer provided.
	Cell Overtemperature	Ambient environment exceeded UPS operating specifications	Replace the UPS. Backup power is no longer provided.
	Cell Overvoltage	Hardware Failure	Replace the UPS. Backup power is no longer provided.
Flashing Green/Red	Self-Test	System is booting	No action needed.

7.1.2. NET LED – Network Status Indicator

Table 8: UPS Network Status Indicators

Indicator State	Summary	Requirement
Steady Off	No Power, No IP address	The device is powered off or is powered on but with no IP address configured (Interface Configuration attribute of the TCP/IP Interface Object).
Flashing Green	No Connections	An IP address is configured, but no CIP connections are established, and an Exclusive Owner Connection has not timed out.
Steady Green	Connected	At least one CIP connection (any transport class) is established, and an Exclusive Owner Connection has not timed out.
Flashing Red	Connection Timeout	An Exclusive Owner Connection for which this device is the target has timed out, the network status indicator shall return to steady green only when all timed out Exclusive Owner connections arc reestablished. Devices that support a single Exclusive Owner Connection shall transition to steady green when subsequent Exclusive Owner Connections are established Timeout of connections other than Exclusive Owner Connections shall not cause the indicator to flash red. The Flashing Red state applies to target connections only. Originators and CIP Routers shall not enter this state when an originated or routed CIP connection times out.
Steady Red	Duplicate IP	For devices that support duplicate IP address detection, the device has detected that (at least one of) its IP addresses are already in use.
Flashing Green/Red	Self-Test	The device is performing its power-on self-test (POST); During POST the network status indicator shall alternate flashing green and red.

7.1.3. CHG LED – Charge Status Indicator

Table 9: UPS Charge Status Indicators

Indicator State	Charge Status
Green	Charged
Flashing Green	Charging
Flashing Red	Discharging
Red	Discharged/Disconnected

7.2 SNMP Traps

Below is a high-level table of the alarms that can be added or removed from the UPS SNMP Alarm table. Anytime an alarm is added or removed from the UPS SNMP Alarm table an add or remove SNMP Trap will be sent. The first column is the Alarm. Log into the WBI to determine the UPS condition that caused the Alarm to be added. Certain alarms will never get removed from the UPS SNMP Alarm table.

Table 10: UPS Status to SNMP Trap Mapping

SNMP Alarms	Description	UPS Condition
upsAlarmOnBypass[7]	One or more of the cells has been determined to be at its end of life. The UPS will continue to pass input power to output, but backup power is no longer available.	End of Life
	The UPS is operating in a temperature that is above safe conditions, the UPS has transitioned to end of life. The UPS will continue to pass input power to output, but backup power is no longer available.	Cell Overtemperature Fault
	One or more of the cells has an unexpected high voltage, the UPS has transitioned to end of life. The UPS will continue to pass input power to output, but backup power is no longer available.	Warning: Overvoltage
upsAlarmTempBad	The UPS is operating in a temperature that is above the specified operating temperature. Take steps to reduce temperature before fault causes the UPS to transition to end of life.	Warning: Overtemperature
upsAlarmBatteryBad[8]	One or more of the cells has been determined to be near end of life.	WARNING: End of Service Life
upsAlarmOutputOverload	The output load exceeds the UPS capacity.	Overload
upsAlarmDepletedBattery	The UPS cells are below the minimum voltage to provide backup power.	Discharged
upsAlarmCommunicationsLost	A problem has been encountered in the communications between the agent and the UPS.	Communication Error

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[7] This alarm (upsAlarmOnBypass) will never get removed from this table. This is the UPS End of Life Alarm.
[8] This alarm (upsAlarmBatteryBad) will never get removed from this table. This Alarm will get added when the UPS is approaching its End of Life.