



TRYSTAR®

ESV UPS-Communications

OWNERS MANUAL

REMOTE MONITORING & COMMUNICATIONS

UPS PRODUCTS

- Models LT, LTR, LT/M, LTN
- MD Series
- HV Series
- Model ES
- Model ESV

REMOTE MONITORING & COMMUNICATIONS

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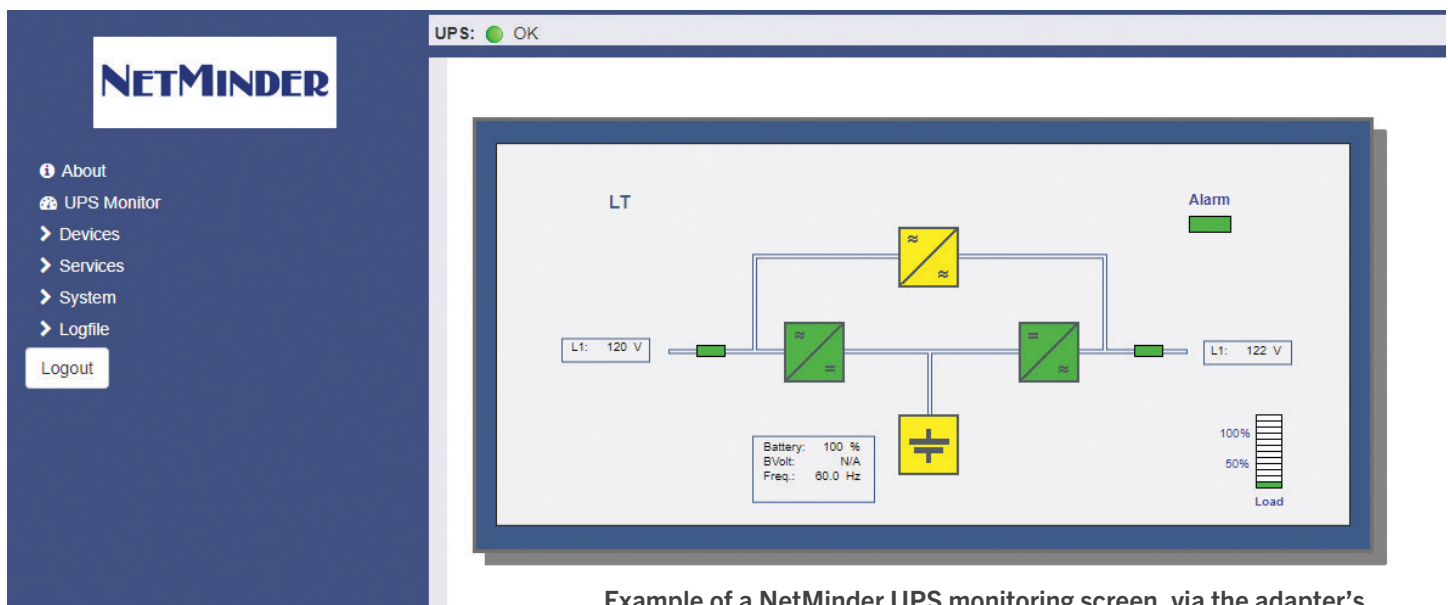
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NETMINDER CS141 ADAPTERS



NetMinder CS141 Series Of Communication Adapters

The NetMinder CS141 series of adapters integrate a Trystar UPS into an Ethernet TCP/IP, MODBUS TCP, or MODBUS RS485 network. These adapters provide remote monitoring of UPS status, alarm conditions and electrical measurements via a web browser, without the need for any external software. Remote notification of alarms and battery status are available via SNMP and e-mail; and are also viewable on a webpage.



Example of a NetMinder UPS monitoring screen, via the adapter's internal web interface.

Network broadcast messaging is also available with the installation of the NetMinder RCCMD client loaded on a network computer. The RCCMD client is a separate software program. When used in conjunction with our UPS and NetMinder CS141 adapter, the RCCMD performs an unattended, graceful shutdown of critical servers before the UPS reaches a low battery condition.

These adapters are available in three different versions:

- **NetMinder CS141B** – Basic Ethernet / SNMP / TCP/IP / MODBUS TCP communications used in UPS applications.
- **NetMinder CS141L** – Advanced version, includes all functionality of the basic version, plus the addition of temperature and humidity sensing capability, and 4 auxiliary contact closure inputs
- **NetMinder CS141L-485** – Adds MODBUS RS485 communications to the advanced version of the Netminder CS141L. However, temperature and humidity sensing is not available in this version.

BACnet Communications Capability

The **NetMinder CS141** adapters are able to communicate over a BACnet/IP or MS/TP network with the addition of customized hardware provided by Trystar. All objects including: parameters, alarms, status, and test results can be monitored and stored by building management systems (BMS) ... thereby improving connectivity and simplifying maintenance.

BACnet compatibility is available with all Trystar UPS's. The "Model ESV" is the only product in which this hardware is internally-mounted. All other UPS Models require external hardware.

PRODUCTS WITH LOCAL MONITOR & NETMINDER ADAPTER

Models LT, LTR, LTN, and LT/M

Available Alarms and Status Indications

CS141B / CS141L / CS141L-485 Alarms

- Powerfail / On Battery
- UPS OK
- Power Restored
- UPS Connection Lost
- UPS Connection Restored
- UPS Battery Old
- Load Normal
- Battery Low
- Load >80%
- Load >90%
- Battery Time Remaining

CS141L / CS141L-485 Only Alarms

- Environment Temp High
- Environment Temp Low
- Environment Temp Normal
- Environment Humidity High
- Environment Humidity Low
- Environment Humidity Normal
- AUX Port 1 High
- AUX Port 2 High
- AUX Port 3 High
- AUX Port 4 High

- AUX Port 1 Low
 - AUX Port 2 Low
 - AUX Port 3 Low
 - AUX Port 4 Low
-

Any alarm function may be assigned to a specific AUX port. Usage of AUX Ports requires an additional circuit board. Consult factory for details.

Electrical Parameters Displayed

- Input Voltage
- Output Voltage
- Frequency
- Output Current (MODBUS only)
- % Load
- % Battery Capacity
- Output VA (MODBUS only)
- Output W (MODBUS only)

MD Series

Available Alarms and Status Indications

CS141B / CS141L / CS141L-485 Alarms

- Powerfail / On Battery
- UPS OK
- Power Restored
- UPS Connection Lost
- UPS Connection Restored
- UPS Battery Old
- Load Normal
- Battery Low
- Load >80%
- Load >90%
- Battery Time Remaining

CS141L / CS141L-485 Only Alarms

- Environment Temp High
- Environment Temp Low
- Environment Temp Normal
- Environment Humidity High
- Environment Humidity Low

- Environment Humidity Normal
 - AUX Port 1 High
 - AUX Port 2 High
 - AUX Port 3 High
 - AUX Port 4 High
 - AUX Port 1 Low
 - AUX Port 2 Low
 - AUX Port 3 Low
 - AUX Port 4 Low
-

Any alarm function may be assigned to a specific AUX port. Usage of AUX Ports requires an additional circuit board. Consult factory for details.

Electrical Parameters Displayed

- Input Voltage
- Output Voltage
- Frequency
- Output Current (MODBUS only)
- % Load
- % Battery Capacity
- Output VA (MODBUS only)
- Output W (MODBUS only)

HV Series

Available Alarms and Status Indications

CS141B / CS141L / CS141L-485 Alarms

- Powerfail / On Battery
- UPS OK
- Power Restored
- UPS Connection Lost
- UPS Connection Restored
- UPS Battery Old
- Bypass On
- Bypass Off
- Battery Low
- General Alarm
- General Alarm Cancelled

CS141L / CS141L-485 Only Alarms

- Environment Temp High
 - Environment Temp Low
 - Environment Temp Normal
 - Environment Humidity High
 - Environment Humidity Low
 - Environment Humidity Normal
 - AUX Port 1 High
 - AUX Port 2 High
 - AUX Port 3 High
 - AUX Port 4 High
 - AUX Port 1 Low
 - AUX Port 2 Low
 - AUX Port 3 Low
 - AUX Port 4 Low
-

Any alarm function may be assigned to a specific AUX port. Usage of AUX Ports requires an additional circuit board. Consult factory for details.

Model ES (with NetMinder slot card)**Available Alarms and Status Indications****CS141B / CS141L / CS141L-485 Alarms**

- On Battery
- Loss of AC Input Power
- UPS OK
- Power Restored
- UPS Connection Lost
- UPS Connection Restored
- UPS Battery Old
- Overload
- Load Normal
- Bypass On
- Bypass Off
- Battery Low
- Load >80%
- Load >90%
- Battery Test Running

- Battery Test Pass
- Battery Test Fail
- Battery Test Cancelled

CS141L / CS141L-485 Only Alarms

- Environment Temp High
- Environment Temp Low
- Environment Temp Normal
- Environment Humidity High
- Environment Humidity Low
- Environment Humidity Normal
- AUX Port 1 High
- AUX Port 2 High
- AUX Port 3 High
- AUX Port 4 High
- AUX Port 1 Low
- AUX Port 2 Low
- AUX Port 3 Low
- AUX Port 4 Low

Any alarm function may be assigned to a specific AUX port. Usage of AUX Ports requires an additional circuit board. Consult factory for details.

Device Function

- Manual Battery Test (Web Interface Only)
- Battery Test Cancel (Web Interface Only)

Electrical Parameters Displayed

- Input Voltage
- Output Voltage
- Output Frequency
- % Load
- % Battery Capacity
- Charger Current
- Battery Voltage
- Output VA
- Output Watts
- Output Current
- +/- DC Bus Voltage (Web Interface Only)

Model ESV

Available Alarms and Status Indications

CS141B / CS141L / CS141L-485 Alarms

- On Battery
- Loss of AC Input Power
- UPS OK
- Power Restored
- UPS Connection Lost
- UPS Connection Restored
- UPS Battery Old
- Overload
- Load Normal
- Bypass On
- Bypass Off
- Battery Low
- Load >80%
- Load >90%
- Battery Test Running
- Battery Test Pass
- Battery Test Fail
- Battery Test Cancelled

CS141L / CS141L-485 Only Alarms

- Environment Temp High
- Environment Temp Low
- Environment Temp Normal
- Environment Humidity High
- Environment Humidity Low
- Environment Humidity Normal
- AUX Port 1 High
- AUX Port 2 High
- AUX Port 3 High
- AUX Port 4 High
- AUX Port 1 Low
- AUX Port 2 Low
- AUX Port 3 Low

- AUX Port 4 Low
-

Any alarm function may be assigned to a specific AUX port. Usage of AUX Ports requires an additional circuit board. Consult factory for details.

Device Function

- Manual Battery Test (Web Interface Only)
- Battery Test Cancel (Web Interface Only)

Electrical Parameters Displayed

- Input Voltage
- Output Voltage
- Output Frequency
- % Load
- % Battery Capacity
- Charger Current
- Battery Voltage
- Output VA
- Output Watts
- Output Current
- +/- DC Bus Voltage (Web Interface Only)

OPTIONAL “UNMS II” SOFTWARE

Optional “UNMS II” (UPS Network Management System) Software

The “UNMS II” (UPS Network Management System) software is a centralized monitoring package that will reside on a Windows-based network server, and provides users **with the ability to monitor multiple Trystar (or other manufacturers’) UPS’s from a single computer or other device.** “UNMS II” incorporates SSL technology for enhanced security, and runs on servers with Windows Professional, VISTA through 10 operating systems; as well as with “Windows Server”.

The system status and full monitoring capabilities of “UNMS II” are compatible with Trystar’s UPS’s equipped with the NetMinder CS141 adapter, as well as other manufacturers’ UPS’s which have network connectivity and utilize the RFC1628 mib. All UPS’s can be monitored from a single network device (e.g., desktop, tablet, laptop, or smartphone), thereby eliminating the need for multiple monitoring systems and software solutions. In addition to UPS’s, the “UNMS II” can also be configured to provide monitoring support for additional facility equipment such as generators.

When the UPS or facility equipment experiences an alarm condition or status change, the “UNMS II” home screen will display that particular unit on the monitoring device (e.g., a laptop computer). The user / facility manager can click on that displayed unit, and its real-time status will be displayed.

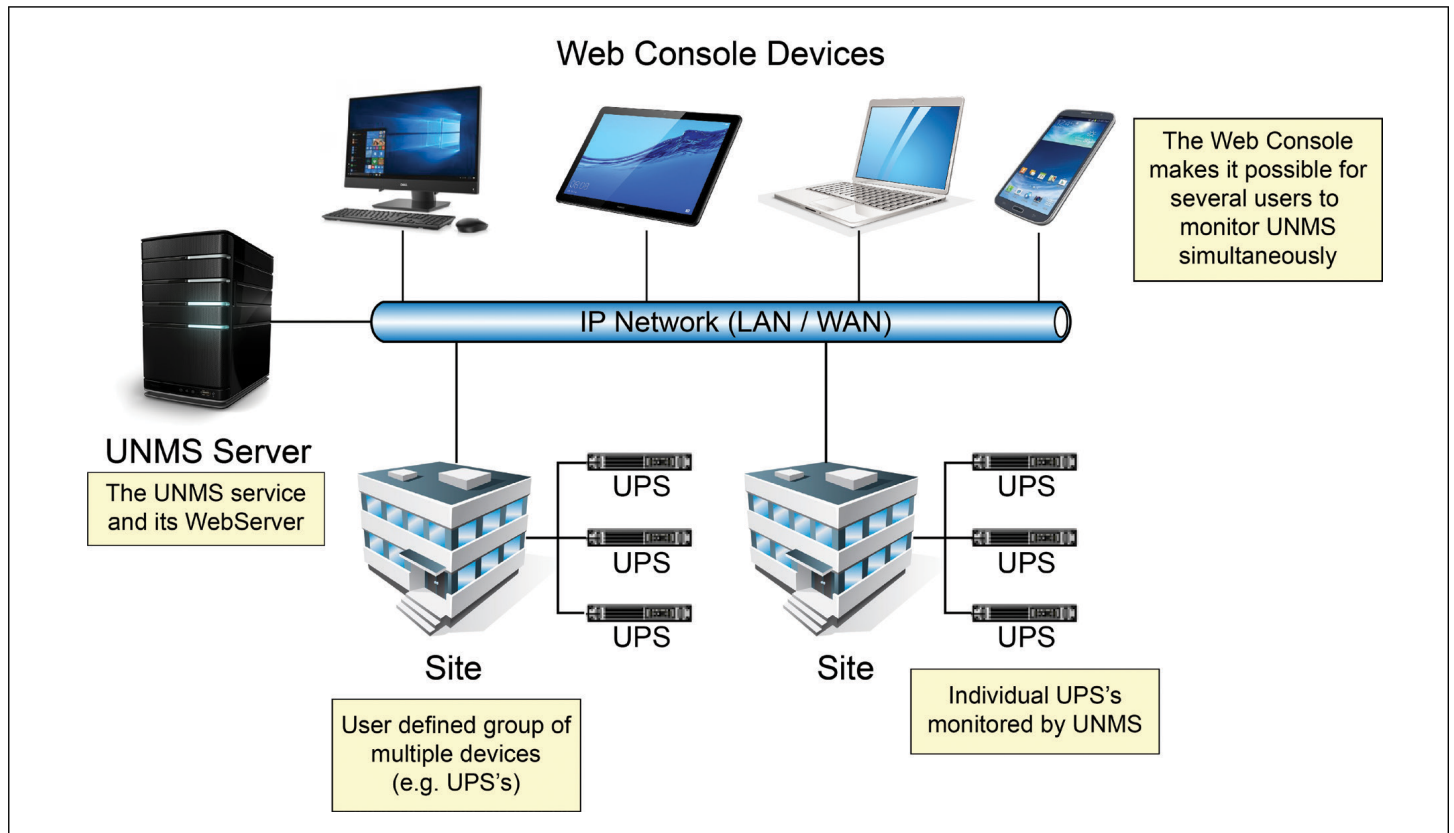
Besides reporting via the home screen display, the “UNMS II” can also be programmed to send an e-mail or SNMP message that reports the alarm or status condition. Additionally “UNMS II” keeps a history log of all alarms and system events, classified according to severity. These log files can be viewed on the monitoring device, and can also be exported as a CSV file and saved for future trend and data analysis.

The “UNMS II” is offered in a **Basic** and an **Advanced** version. Both versions perform the functionality discussed above ... however, there are a few significant differences.

The **Basic Version** can monitor up to (9) Trystar UPS’s with NetMinder CS141 Ethernet adapters, from one device (e.g., desktop, tablet, laptop, or smartphone).

The **Advanced Version** can monitor up to an unlimited number of UPS’s, and has a customizable user interface screen which can be modified to reflect all of the UPS’s and additional facility equipment being monitored.

Below is an illustration of a typical “UNMS II” Advanced Version network application:



PERIPHERALS & ACCESSORIES



Multifunction Communication Modem (MCM)

Meeting NFPA standards for system testing is critical in today's business infrastructure. To assist in meeting these standards, Trystar is offering the Multifunction Communications Modem (MCM). The Multifunction Communications Modem can send a fax, an email, dial a phone number and play a prerecorded message, or report system test results to a web page. The Multifunction Communications Modem comes standard with 2 contact inputs for battery test pass/fail results, plus options for up to 8 different devices.



Remote Annunciator

Using LED's and an audible alarm, the Remote Annunciator is a device that connects to the status and alarm contacts within the UPS and notifies key facility personnel of UPS alarm conditions. The Remote Annunciator includes a 50-ft cord (longer cords available in 25-ft increments) that plugs into the UPS. The Remote Annunciator both displays and sounds product-specific alarms; and also includes an Alarm Silence pushbutton which allows system personnel to silence the audible alarm(s).



Automatic Message Dialer

System monitoring is critical. In some cases where e-mail or a computer network is not available, the Automatic Message Dialer fills the gap. The Automatic Message Dialer is an optional device available on our UPS products that provides 24/7 monitoring via a telephone line. In the event there is an alarm condition with the UPS, the Automatic Message Dialer dials up to 4 numbers and plays a customizable pre-recorded voice message.



USB Adapter

The USB Adapter allows for flexible connectivity from a server to any Trystar UPS, without the need of a serial port.

Note: Size and color of adapter may vary from one shown. Not available on HV UPS's.

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Temperature Sensor & Temperature / Humidity Sensor

Temperature and Temperature/Humidity Sensors are available as options on the NetMinder CS141L. Both of these sensors measure either the ambient temperature and/or humidity, and display the results on a network computer. If the temperature or humidity exceeds the predefined, programmable thresholds, the CS141L will send an e-mail, SNMP trap, or RCCMD command for shutting down servers. This keeps personnel informed and critical equipment protected.





MIU4 (4X Port Expander)

The MIU4 is available with Trystar's line of UPS's. The MIU4 gives you the flexibility to use the NetMinder CS141 adapter, an Automatic Message Dialer, plus 2 other ports for a remote annunciator or another alarm monitoring device from one UPS. With the MIU4, there are no worries about running out of status signals.

INTELLISTAT TS™ NETWORK COMMUNICATIONS

Intellistat TS™ Monitor

The “**Model ESV**” UPS also offers advanced digital monitoring via the optional “**Intellistat TS**” located on the unit itself.

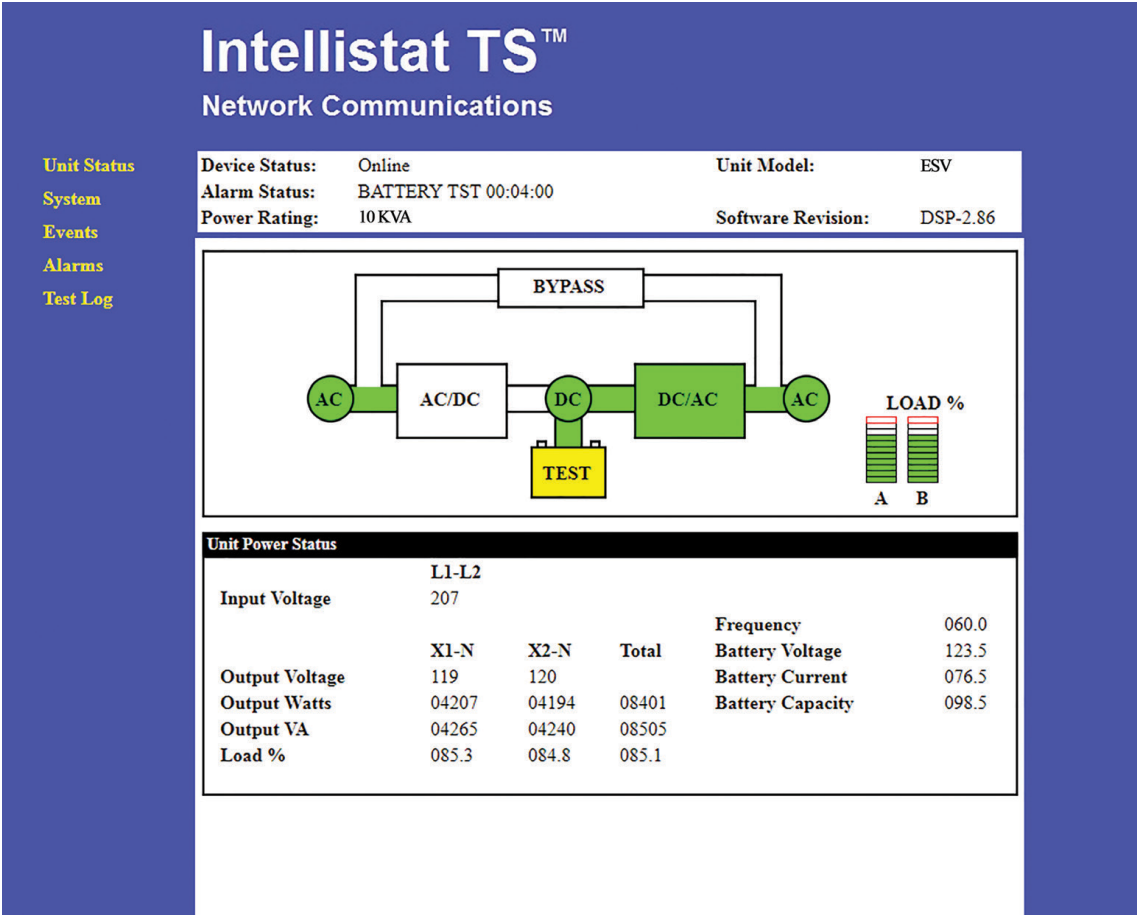
This full-featured, user-friendly monitor provides quick and easy access to electrical parameters, system status, and event logs from a touchscreen display. Operational conditions and alarm conditions are displayed on the screen, together with an audible alarm. The color, high-resolution, LCD touchscreen display allows the entry of date / time values, system setpoints, alarm threshold settings, and password information into the monitor.

The “**Intellistat TS**” provides complete system diagnostics, including userprogrammable automatic battery testing and date- / time-stamped logging of the results.

Intellistat TS™ Network Communications

THE “INTELLISTAT TS” MONITOR IS AVAILABLE WITH OPTIONAL “BUILT-IN” NETWORK COMMUNICATIONS, WHICH INTEGRATE THE UPS INTO A BACNET/IP OR BACNET MS/TP, ETHERNET TCP/IP, MODBUS TCP, OR MODBUS RS485 NETWORK, WITH A SPECIFIC IP ADDRESS FOR ETHERNET-CONNECTED SYSTEMS. WHEN THIS OPTION IS SELECTED, THE USE OF A NETMINDER ADAPTER IS NO LONGER NECESSARY FOR REMOTE MONITORING ... HOWEVER, ALL THE COMMUNICATION PROTOCOLS LISTED ABOVE ARE STILL AVAILABLE.

This “built-in” network communications capability also provides remote monitoring of the UPS's status, battery test pass/fail results, alarm conditions, and electrical measurements via a web browser, without the need for any external software. Remote notification of alarm and status “Events” are available via SNMP, e-mail, and text messaging; or via the user's building management system (BMS). “Alarms” and battery “Test Logs” each store up to 250 events that are time- and date-stamped, and may be downloaded in a text file.



PRODUCT(S) WITH INTELLISTAT TS NETWORK COMMUNICATIONS

Model ESV (with optional Intellistat TS monitor)

Available Alarms and Status Indications

- General Alarm
- Return to System Normal
- On Battery Power
- Return to AC Power
- Output VA High
- Load Normal
- On Manual Bypass
- Output Circuit Breaker Open
- Input Voltage Out Of Range
- Output Voltage Out Of Range
- Low Battery Warning
- Battery Critical (10% or less of capacity remaining)
- Over-temperature
- System Shutdown
- Contact Service
- System Testing
- Battery Test Failed
- Battery Test Passed

Device Functions

- Manual Battery Test (Web Interface Only)
- Battery Test Cancel (Web Interface Only)

* May not be available on UPS models

Electrical Parameters Displayed

- Input Voltage
- Output Voltages L-N, L-L
- Output Watts Per Phase
- Output VA Per Phase
- % Load Per Phase
- Frequency

- Battery Voltage
- Battery Current
- Battery Capacity

PERIPHERALS & ACCESSORIES



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