



©entri Series

HE1U-XX12-MU Series

High-Efficiency Low Profile 12V Power Supply with Battery Management System



- Full range 90~264 VAC @ 50~60Hz input
- Remote Monitoring of Power supply Voltage & Current, AC Voltage, Temperature, & External Alarm.
- Remote control of power supply ON/OFF & Alarm Output ON/OFF via Web Interface
- Configurable Alarms, as well as Email Notifications & SNMP Traps



Model	HE1U-2012-MU	HE1U-5012-MU	HE1U-12012-MU
Output Current (Amps)	22	50	100
Output Voltage (VDC)	13.8		
Input Voltage (VAC)	90~264 VAC @ 50~60Hz input		
Dimensions, (H x W x D) Product	44.5 x 482.6 x 355.6 mm	1.75 x 19 x 14 in	
Dimensions, (H x W x D) Shipping	50.8 x 508 x 368.6 mm	2 x 20 x 14.5 in	
Weight, Product	9 lbs. (4.1 KG)	10.6 lbs. (4.8 KG)	11 lbs. (5 KG)
Weight, Shipping	9.5 lbs. (4.3KG)	11 lbs. (5 KG)	11.4 lbs. (5.15 KG)

***NOTE: Specifications are subject to change without notice**

Contents

Section 1 Important Safety Instructions	3
Section 2 Product Overview.....	4
Section 3 Installation.....	5
Layout & Wiring	5
Front Panel Layout.....	5
Installation Block Diagram.....	5
HE1U-XX12-MU Wiring Layout.....	5
HE1U-XX12-MU Alarm Wiring	6
Connecting to the HE1U-XX12-MU VIA the Internet.....	7
Prerequisites.....	7
Determining the IP Address of the HE1U-XX12-MU	7
Using DHCP	7
Using Static HE1U-XX12-MU IP and Network Configuration.....	7
Open a Web Connection to the HE1U-XX12-MU.....	8
Remote Monitoring and Control Setup	9
User Setup.....	9
User Login.....	11
Network Setup.....	12
SNMP Traps Setup	13
Email Setup.....	13
Device Setup.....	15
Sending Text Messages	16
Logging.....	16
SNMP MIB File Download	17
Date and Time Settings	17
Miscellaneous Settings.....	17
Sensor Setup	18
Alarm Setup.....	21
Remote Monitoring and Control Status Page.....	24
Section 4 Operation.....	25

Front Panel Controls	26
Battery Charging	Error! Bookmark not defined.
Section 5 Maintenance	Error! Bookmark not defined.
Battery	26
Conductor Pretreatment	26
Recommended Copper Wire Size for Current Capacity	27
Section 6 Specifications	28
Section 7 Warranty	29
Section 8 Contact Us	30

Section 1 | Important Safety Instructions

THESE INSTRUCTIONS ARE INTENDED FOR USE BY A TECHNICIAN FAMILIAR WITH ELECTRONIC PRODUCTS

DO NOT block any of the cooling vents on the sides and top and always allow adequate ventilation by not installing the unit inside tightly closed spaces. The physical mounting position is not critical, but the cooling vents must not be blocked.

NOTE: The outputs are NOT referenced to the chassis, however, the alarm inputs and outputs are referenced to the negative output, so 'G' on the alarm connections will be negative 12 volts if you install the HE1U-XX12-MU in a positive ground system. The Alarm Input and Output can be optionally ordered as fully optoisolated if needed.

Section 2 | Product Overview

The HE1U-XX12-MU is an Internet Ready Heavy Duty AC to DC Power Supply in a 1U chassis. The HE1U-XX12-MU comes with power factor correction, and four layers of protection against overload, over voltage, over temperature, and short circuit. This model also comes with internal power supply ON/OFF remote control and DC-OK.

The new internal Remote Monitoring and Control Unit (RMCU), provides the ability to remotely monitor the AC voltage, power supply voltage, battery voltage, power supply current and internal temperature, as well as the ability to remotely control the ON/OFF State of the power supply all via the internet using any standard web browser. A mobile-friendly version of the status page is also included.

Users that have access to the network can view the status of the power supply, control outputs, and the alarm conditions, as well as download a CSV file of logged states. Administrative users can access the setup screens and change the control settings by logging into the RMCU via the browser. Alarm conditions are configurable and can include over and under thresholds. Alarm notifications can be configured by an administrator to send email and SNMP traps. Setups are saved in non-volatile RAM, and a battery backed up real-time clock is provided to timestamp information logged to the internal SD card. Logging rate is user settable.

See www.duracomm.com for more information.

Section 3 | Installation

Layout & Wiring

Front Panel Layout

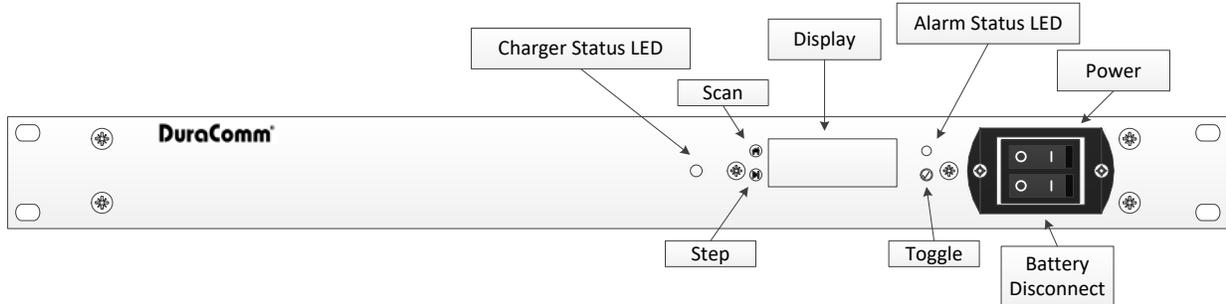


Figure 1

Installation Block Diagram

HE1U-XX12-MU Wiring Layout

This system setup will provide continuous power to the load and maintain the battery bank with the smart charger while AC power is on. There is a seamless transfer of the load to the battery when the AC power goes off. The LVD will disconnect the battery if the voltage drops below 10.4 VDC. The battery reconnects once AC power is restored and battery voltage reaches 12.5 VDC.

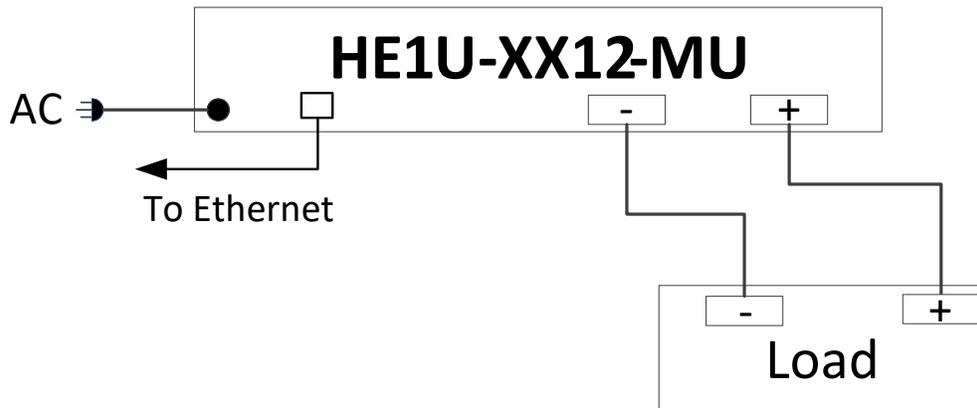


Figure 2: Typical Connections for HE1U-BMS-MU Series

HE1U-XX12-MU Alarm Wiring

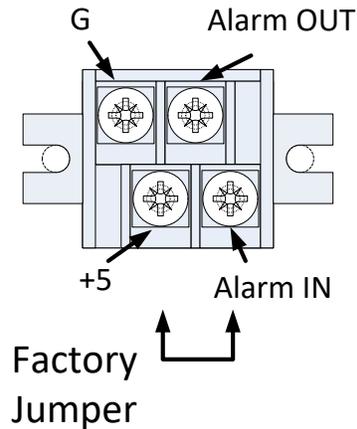


Figure 3

(Shown with factory jumper to silence alarm condition)

Table 1

Between +5V and Alarm In	Output Status
Switch Closed	Alarm Closed
Switch Open	Alarm Open

Table 2

Between G and Alarm Out	Output Status
Open-Drain	500 mA max, 60 V max
Alarm ON/LOW	Shorted
Alarm OFF/HIGH	Open

The Alarm Output is an open drain MOSFET referenced to G. The Alarm Output (A_{out}) Can Sink a maximum of 500 mA at a maximum voltage of +60 VDC for the revision 2 monitoring hardware included with the HE1U-XX12-MU. The Alarm Input (A_{in}) is referenced to G, and is a LED in series with a 220 Ohm resistor internally, and can withstand 50 mA max. A factory jumper is installed from +5 to A_{in} to silence the alarm. The jumper can be replaced with external wiring and a switch or relay.

Connecting to the HE1U-XX12-MU VIA the Internet

Prerequisites

System administrators must decide whether the HE1U-XX12-MU will operate on the network with DHCP or a fixed IP address. The factory-set HE1U-XX12-MU will have these static addresses: **IP address: 192.168.100.220, gateway address: 192.168.100.1, netmask: 255.255.255.0, and DNS address: 192.168.100.1.**

If you configure it to use DHCP, the HE1U-XX12-MU will request an available IP address on your network. You will need to determine what address it has been given.

If DHCP is not used, system administrators must also choose an unused IP address, and other network settings to use in the Network Setup screen. System administrators will also need to choose an email service and address to use for notifications if needed. These will be used in the Email Setup Screen.

Determining the IP Address of the HE1U-XX12-MU

Power up the HE1U-XX12-MU then connects the HE1U-XX12-MU to the network with an Ethernet cable.

Using DHCP

You will need to get the IP address in one of two ways. You can get the IP address from the DHCP server's client list, or you can use a PC on the same network to scan for the new IP address by using a software tool such as Angry IP Scanner. In Angry IP Scanner, you should add the MAC address "Fetcher" under "Tools > Fetchers". The DuraComm MAC addresses all start with a base address of **70-B3-D5-6B-3**. Write down the IP address of the HE1U-XX12-MU then proceed to the section in this manual named "**Open a Web Connection to the HE1U-XX12-MU**".

Using Static HE1U-XX12-MU IP and Network Configuration

If your network is not set up for DHCP, you will need to manually configure the settings to match the network it will be used on. Before you can do that, you will need to configure a computer to talk to the HE1U-XX12-MU at the default configuration settings shown above. We will use Windows 7 as an example. Other operating systems will vary, but the overall concept is the same.

1. Disconnect your PC from all networks.
2. Connect it directly to with an Ethernet cable (You may need to use an Ethernet crossover cable if the PC does not automatically detect this configuration).
3. Open the control panel on your PC and select "View Network Status and Tasks"
4. Click on "Change Adapter Settings" on the left side of the screen.
5. Right click on "Local Area Connection" and click on "Properties"
6. Click on "Internet Protocol Version 4 (TCP/IPv4)" to highlight it, then click the "Properties" button.
7. Before you make any changes, **record the existing settings**, so that you can change them back when you are finished setting up the HE1U-XX12-MU.

8. Enable "Use The Following IP Address"
9. Now enter 192.168.100.221 for the IP address.
10. Enter 255.255.255.0 Subnet mask
11. Click OK to save the network configuration.
12. Jump to the section in this owner's guide named "**Open a Web Connection to the HE1U-XX12-MU**" to log in and enter the final network settings for the HE1U-XX12-MU.

Open a Web Connection to the HE1U-XX12-MU

1. Connect the RJ-45 connector on the back of the HE1U-XX12-MU to your network
2. Use your favorite device and browser (Chrome, Firefox, Internet Explorer, etc.), and enter the IP address of the power supply on your network into the URL box on the browser (see the screenshot below). If you are unable to connect to the device with the browser, you will need to use a terminal with a USB connection to access the device and configure the IP address. If the HE1U-XX12-MU responds with the "Status" screen, you can skip to the 'User Login' Section. You may want to refer to the 'User Setup' section now or later to change user account information or, if necessary, perform a factory reset.

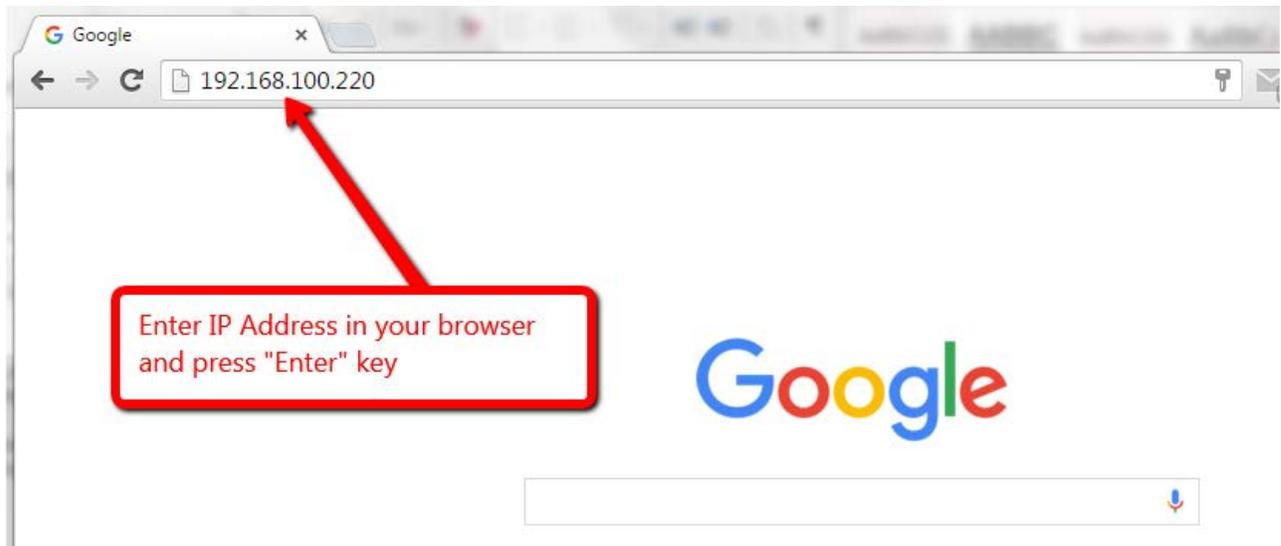


Figure 4

Remote Monitoring and Control Setup

User Setup

SITE CENTRI© - HE1U-2012-BMS-MU

Status	Device Setup	Sensor Setup	Alarm Setup
User Setup	Network Setup	E-Mail Setup	Logout (admin)

Users

#1	Username: <input type="text" value="control"/> Access: <input type="text" value="Control"/>
	Web password: <input type="text"/> Reenter password: <input type="text"/>
	SNMPv3: <input type="text" value="Disabled"/> Auth: <input type="text"/> Privacy: <input type="text"/>
#2	Username: <input type="text" value="admin"/> Access: <input type="text" value="Admin"/>
	Web password: <input type="text"/> Reenter password: <input type="text"/>
	SNMPv3: <input type="text" value="Disabled"/> Auth: <input type="text"/> Privacy: <input type="text"/>
#3	Username: <input type="text"/> Access: <input type="text" value="Disabled"/>
	Web password: <input type="text"/> Reenter password: <input type="text"/>
	SNMPv3: <input type="text" value="Disabled"/> Auth: <input type="text"/> Privacy: <input type="text"/>
#4	Username: <input type="text"/> Access: <input type="text" value="Disabled"/>
	Web password: <input type="text"/> Reenter password: <input type="text"/>
	SNMPv3: <input type="text" value="Disabled"/> Auth: <input type="text"/> Privacy: <input type="text"/>
#5	Username: <input type="text"/> Access: <input type="text" value="Disabled"/>
	Web password: <input type="text"/> Reenter password: <input type="text"/>
	SNMPv3: <input type="text" value="Disabled"/> Auth: <input type="text"/> Privacy: <input type="text"/>
#6	Username: <input type="text"/> Access: <input type="text" value="Disabled"/>
	Web password: <input type="text"/> Reenter password: <input type="text"/>
	SNMPv3: <input type="text" value="Disabled"/> Auth: <input type="text"/> Privacy: <input type="text"/>
#7	Username: <input type="text"/> Access: <input type="text" value="Disabled"/>
	Web password: <input type="text"/> Reenter password: <input type="text"/>
	SNMPv3: <input type="text" value="Disabled"/> Auth: <input type="text"/> Privacy: <input type="text"/>
#8	Username: <input type="text"/> Access: <input type="text" value="Disabled"/>
	Web password: <input type="text"/> Reenter password: <input type="text"/>
	SNMPv3: <input type="text" value="Disabled"/> Auth: <input type="text"/> Privacy: <input type="text"/>

Leave password/keys blank to not change them.

It can take several minutes after changing SNMPv3 keys before they take affect. Device supports AES (128bit, CFB) for privacy protocol and MD5 for auth protocol.

Figure 5

Miscellaneous

MIB URL:

Factory Reset

This will restore ALL settings to original factory default values, including the password.
Remote communications may be lost.
On-site reconfiguration may be required.
Some settings require a power-cycle/reboot to take effect

Type the current Administrator password here to confirm

Password:

Network Reset

Pressing and holding down the button on the unit for over 20 seconds will reset all the network settings and passwords to factory default. The button is located on the PCB.

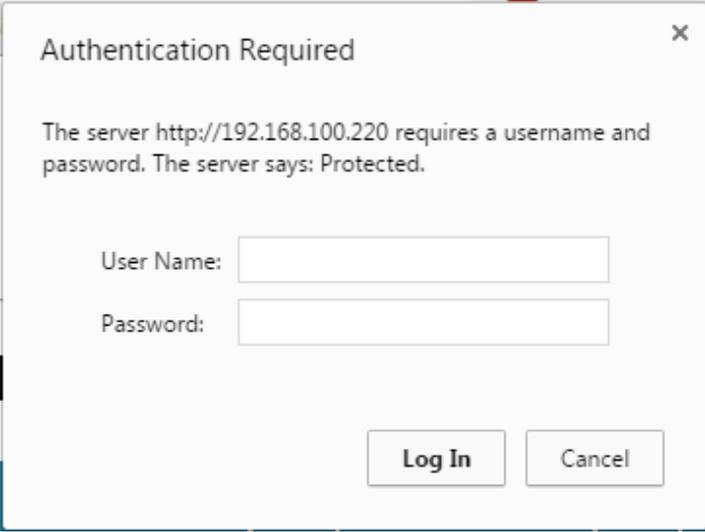
Copyright © 2017 [DuraComm](#) Corporation

Figure 6

Password changes and HE1U-XX12-MU hard resets are performed by using this page. Care should be taken when changing any of these settings.

NOTE: To hard reset your device back to factory settings, perform a factory reset here, or press the red button on the HE1U-XX12-MU PCB and hold it for more than 30 seconds (you will need to remove the cover on the HE1U-XX12-MU, and connect power to the battery terminals). Re-connect to the HE1U-XX12-MU through your web browser by entering the factory supplied IP address and HTTP port (see Network Setup). All setup requires an administrative user to log into the HE1U-XX12-MU. Click the 'Login' button in the top menu, and you should see the User Login screen (see Figure 7).

User Login



Authentication Required

The server http://192.168.100.220 requires a username and password. The server says: Protected.

User Name:

Password:

Log In Cancel

Figure 7

Enter the username and password. Factory default username and password are as follows:

Admin Users have full user control of the device.

Username: admin

Password: admin

Control users have limited control capability (see below).

Username: control

Password: control

These two users are the only ones pre-configured in the HE1U-XX12-MU. “Control” users can access all screens except the User Setup screen.

Network Setup

SITE CENTRI© - HE1U-2012-BMS-MU

Status	Device Setup	Sensor Setup	Alarm Setup
User Setup	Network Setup	E-Mail Setup	Logout (control)

TCPIP Setup

MAC Address: 70:B3:D5:6B:35:6F

Static IP Address:

Static IP address to use if DHCP client is disabled.

Static Gateway Address:

Static gateway address to use if DHCP client is disabled.

Static Netmask Address:

Static netmask address to use if DHCP client is disabled.

Static DNS Address:

Static DNS address to use if DHCP client is disabled.

Alternate DNS Address:

Alternate DNS address is used regardless if DHCP client is enabled or disabled.

DHCP Client:

If enabled, get IP configuration from DHCP server on the network.

SNMP Settings

Agent UDP port:

Set to 0 to disable SNMP agent access

Agent access:

Public (read) community:

Private (write) community:

Trap UDP port:

Set to 0 to disable all traps

Trap Destination IP:

Leave blank to not send a trap

Send test trap now?

HTTP server

HTTP port:

These parameters require a power-cycle or reboot.

Changing any of these values may affect your ability to access the RMCU

Copyright © 2017 [DuraComm](#) Corporation

Figure 8

Note: These screenshots are taken from a model in the HE1U-XX12-MU series and show typical setup information for all model numbers in the series (Except for Model Number).

A network administrator for your company must choose the settings for this page. The default HTTP port is **80**. If a different HTTP port is used, it will need to be added to the URL to access the HE1U-XX12-MU. For example: if the port is changed to **8080** then the address would be changed to <http://192.168.0.253:8080>

NOTE: You must reboot the device for changes in these settings to take effect.

SNMP Traps Setup

This section is simplified and meant for network administrators who already understand SNMP traps and how to configure capable equipment into their system. For those who want to understand the benefits of using SNMP traps, you can search for training material online under “SNMP Traps”, “MIB Browsers”, and “SNMP Monitoring”.

The MIB file for the HE1U-XX12-MU can be downloaded from the HE1U-XX12-MU after you connect to it with your browser. Go to the Device Setup page and log in to the HE1U-XX12-MU. Halfway down the page there is a link to the MIB file. Right-click on the link and click “Save Link As” to download the file.

After download, import the MIB file into your MIB browser or Monitoring software to configure it for use with the HE1U-XX12-MU.

When the MIB file has been loaded, complete the “SNMP Setup” section on the “Network Setup” page of the HE1U-XX12-MU to configure it for use with your monitoring solution.

The HE1U-XX12-MU will send traps for all configured alarm conditions including bootup, temperature, analog alarms, and digital alarms.

Digital Outputs can also be controlled by SNMP and configured for alarms on the HE1U-XX12-MU.

Email Setup

Enter the required email setup parameters given to you by your System Administrator. You can also send a test email from this screen.

SITE CENTRI© - HE1U-2012-BMS-MU

Status	Device Setup	Sensor Setup	Alarm Setup
User Setup	Network Setup	E-Mail Setup	Logout (control)

Email setup

E-mail server:

Server port:

Server username:

Server password:

E-mail to:

E-mail from:

Minimum interval: Minutes
Device won't attempt to send e-mails faster than this, any alarms that happen will be queued and sent when this duration has expired.

Periodic interval:

Periodic start:

Send e-mail on bootup?

Send test e-mail now?

Leave hostname blank or set port to 0 to disable e-mails.

Leave the username/password blank if your e-mail server doesn't require it.

Copyright © 2017 [DuraComm](#) Corporation

Figure 9

Device Setup

SITE CENTRI© - HE1U-2012-BMS-MU

Status	Device Setup	Sensor Setup	Alarm Setup
User Setup	Network Setup	E-Mail Setup	Logout (control)

Device Setup

Device Info

Site Name:
Model: RMCU
Serial Number: 5487
Version: HW: 2, FW: 3.10

Logging

Logging rate: Minutes
Log start date: Thu, 14 Jun 2018 12:26:19
Last log date: Thu, 14 Jun 2018 12:29:19
Clear Log?
Append Now?
Log Alarms?
Logging status: Success
Download log: [RMCU.CSV](#)
Right click to save

SNMP MIB File Download

Download MIB File: [SNMP MIB File](#) - Right click to save

Date and time settings

Current system time: Thu, 14 Jun 2018 12:29:37
NTP Servers:

Leave blank to disable NTP
NTP sync now?
NTP status: Disabled
Time Zone: Hours
Manually set time?
Date (MM/DD/YY):
Time (HH:MM:SS):

Front Panel

Backlight level (0-100%):
Auto off:

Miscellaneous

Significant digits:
Temperature units:

Copyright © 2017 [DuraComm](#) Corporation

Figure 10:

Sending Text Messages

In order to send a text, you need to send an email to the appropriate email address of your cell phone carrier. Simply enter your phone number with no spaces, parenthesis, or hyphens followed by your carrier address. For example, 8165551234@vtext.com would send a text message to the Verizon user at phone number (816)555-1234. Here are the most common carrier addresses.

- **Alltel:** *phonenumber@message.alltel.com*
- **AT&T:** *phonenumber@txt.att.net*
- **T-Mobile:** *phonenumber@tmomail.net*
- **Virgin Mobile:** *phonenumber@vmobl.com*
- **Sprint:** *phonenumber@messaging.sprintpcs.com*
- **Verizon:** *phonenumber@vtext.com*
- **Nextel:** *phonenumber@messaging.nextel.com*
- **US Cellular:** *phonenumber@mms.uscc.net*
- **Cricket Wireless:** *phonenumber@sms.mycricket.com*

The body of the email or alert will be sent to your phone as a text message. Note: Text limits and fees vary by provider and plan.

Device Info

A custom site name can be entered here, and the model number, serial number, software version, and hardware version are shown here.

Logging

The HE1U-XX12-MU will log all measurements and alarms to an SD card that is plugged into the HE1U-XX12-MU board. Users can set the rate here, as well as clear the card, or append new measurements. The CSV log file can be downloaded here, as well as the Status page. If the SD card fills up, the oldest sample is discarded when a new one is stored. The HE1U-XX12-MU custom device name is stored with the logged data, so that the source of the card can be identified after it removed from the HE1U-XX12-MU.

The log file will be automatically renamed and a new one started when the file size reaches 5MB. Download all log files before deleting them!

The ability to log readings when an alarm occurs has been added. To turn off periodic logging, just enter 0 as the logging rate. You can set up logging to occur only on alarms, periodically, both or none.

SNMP MIB File Download

The SNMP MIB File can be downloaded from this page.

Date and Time Settings

Configuration for all date and time settings. Date and time are battery backed up on the card, and the values are saved in the logged samples. The real-time-clock can synchronize it's time to the network through an NTP server, or it can be set manually if a network is not available.

The NIST NTP servers can be used by entering **time.nist.gov** or **pool.ntp.org**, or another NTP server address into the **NTP Server box**.

Miscellaneous Settings

You can set the number of significant digits after the decimal for the Analog Voltage readouts on the Status page, as well as set the temperature units.

Sensor Setup

SITE CENTRI© - HE1U-2012-BMS-MU

Status	Device Setup	Sensor Setup	Alarm Setup
User Setup	Network Setup	E-Mail Setup	Logout (control)

Sensor Setup

Analog Inputs		Alarm color		Averaging		
#1	Amps Power Supply	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	3 samples
#2	Amps Battery Mode	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	3 samples
#3	Volts Power Supply	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	3 samples
#4	Volts Battery	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	3 samples
#5		<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	None
#6		<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	None

Digital Inputs		Alarm / Open		Type	Averaging		
#1	Alarm In	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	GPIO	None
#2	DC-OK Power Supply	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	GPIO	None
#3		<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	GPIO	None
#4		<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	GPIO	None

Digital Outputs		Inactive	Active	Pulse	PWM
#1	Alarm Out	Green/Right OFF/HIGH	Red/Left ON/LOW	No 0.5 seconds	Disabled
#2	Power Supply ON/OFF	Green/Right ON	Red/Left OFF	No 0.5 seconds	Disabled
#3	Battery ON/OFF	Green/Right ON	Red/Left OFF	No 0.5 seconds	Disabled
#4		Green/Left Inactive	Red/Right Active	No 0.5 seconds	Disabled

AC Inputs		Averaging
#1	AC Line	None

Other Inputs		Averaging
#1	Temperature	None

Figure 11

Sensor Setup - Schedules

Scheduled Outputs	
#1	Alarm Out <input type="button" value="v"/> OFF/HIGH <input type="button" value="v"/> Disabled <input type="button" value="v"/> 00:00 to 00:00 <input type="checkbox"/> Sunday <input type="checkbox"/> Monday <input type="checkbox"/> Tuesday <input type="checkbox"/> Wednesday <input type="checkbox"/> Thursday <input type="checkbox"/> Friday <input type="checkbox"/> Saturday
#2	Alarm Out <input type="button" value="v"/> OFF/HIGH <input type="button" value="v"/> Disabled <input type="button" value="v"/> 00:00 to 00:00 <input type="checkbox"/> Sunday <input type="checkbox"/> Monday <input type="checkbox"/> Tuesday <input type="checkbox"/> Wednesday <input type="checkbox"/> Thursday <input type="checkbox"/> Friday <input type="checkbox"/> Saturday
#3	Alarm Out <input type="button" value="v"/> OFF/HIGH <input type="button" value="v"/> Disabled <input type="button" value="v"/> 00:00 to 00:00 <input type="checkbox"/> Sunday <input type="checkbox"/> Monday <input type="checkbox"/> Tuesday <input type="checkbox"/> Wednesday <input type="checkbox"/> Thursday <input type="checkbox"/> Friday <input type="checkbox"/> Saturday
#4	Alarm Out <input type="button" value="v"/> OFF/HIGH <input type="button" value="v"/> Disabled <input type="button" value="v"/> 00:00 to 00:00 <input type="checkbox"/> Sunday <input type="checkbox"/> Monday <input type="checkbox"/> Tuesday <input type="checkbox"/> Wednesday <input type="checkbox"/> Thursday <input type="checkbox"/> Friday <input type="checkbox"/> Saturday
#5	Alarm Out <input type="button" value="v"/> OFF/HIGH <input type="button" value="v"/> Disabled <input type="button" value="v"/> 00:00 to 00:00 <input type="checkbox"/> Sunday <input type="checkbox"/> Monday <input type="checkbox"/> Tuesday <input type="checkbox"/> Wednesday <input type="checkbox"/> Thursday <input type="checkbox"/> Friday <input type="checkbox"/> Saturday
#6	Alarm Out <input type="button" value="v"/> OFF/HIGH <input type="button" value="v"/> Disabled <input type="button" value="v"/> 00:00 to 00:00 <input type="checkbox"/> Sunday <input type="checkbox"/> Monday <input type="checkbox"/> Tuesday <input type="checkbox"/> Wednesday <input type="checkbox"/> Thursday <input type="checkbox"/> Friday <input type="checkbox"/> Saturday
#7	Alarm Out <input type="button" value="v"/> OFF/HIGH <input type="button" value="v"/> Disabled <input type="button" value="v"/> 00:00 to 00:00 <input type="checkbox"/> Sunday <input type="checkbox"/> Monday <input type="checkbox"/> Tuesday <input type="checkbox"/> Wednesday <input type="checkbox"/> Thursday <input type="checkbox"/> Friday <input type="checkbox"/> Saturday
#8	Alarm Out <input type="button" value="v"/> OFF/HIGH <input type="button" value="v"/> Disabled <input type="button" value="v"/> 00:00 to 00:00 <input type="checkbox"/> Sunday <input type="checkbox"/> Monday <input type="checkbox"/> Tuesday <input type="checkbox"/> Wednesday <input type="checkbox"/> Thursday <input type="checkbox"/> Friday <input type="checkbox"/> Saturday
#9	Alarm Out <input type="button" value="v"/> OFF/HIGH <input type="button" value="v"/> Disabled <input type="button" value="v"/> 00:00 to 00:00 <input type="checkbox"/> Sunday <input type="checkbox"/> Monday <input type="checkbox"/> Tuesday <input type="checkbox"/> Wednesday <input type="checkbox"/> Thursday <input type="checkbox"/> Friday <input type="checkbox"/> Saturday
#10	Alarm Out <input type="button" value="v"/> OFF/HIGH <input type="button" value="v"/> Disabled <input type="button" value="v"/> 00:00 to 00:00 <input type="checkbox"/> Sunday <input type="checkbox"/> Monday <input type="checkbox"/> Tuesday <input type="checkbox"/> Wednesday <input type="checkbox"/> Thursday <input type="checkbox"/> Friday <input type="checkbox"/> Saturday
#11	Alarm Out <input type="button" value="v"/> OFF/HIGH <input type="button" value="v"/> Disabled <input type="button" value="v"/> 00:00 to 00:00 <input type="checkbox"/> Sunday <input type="checkbox"/> Monday <input type="checkbox"/> Tuesday <input type="checkbox"/> Wednesday <input type="checkbox"/> Thursday <input type="checkbox"/> Friday <input type="checkbox"/> Saturday
#12	Alarm Out <input type="button" value="v"/> OFF/HIGH <input type="button" value="v"/> Disabled <input type="button" value="v"/> 00:00 to 00:00 <input type="checkbox"/> Sunday <input type="checkbox"/> Monday <input type="checkbox"/> Tuesday <input type="checkbox"/> Wednesday <input type="checkbox"/> Thursday <input type="checkbox"/> Friday <input type="checkbox"/> Saturday
#13	Alarm Out <input type="button" value="v"/> OFF/HIGH <input type="button" value="v"/> Disabled <input type="button" value="v"/> 00:00 to 00:00 <input type="checkbox"/> Sunday <input type="checkbox"/> Monday <input type="checkbox"/> Tuesday <input type="checkbox"/> Wednesday <input type="checkbox"/> Thursday <input type="checkbox"/> Friday <input type="checkbox"/> Saturday
#14	Alarm Out <input type="button" value="v"/> OFF/HIGH <input type="button" value="v"/> Disabled <input type="button" value="v"/> 00:00 to 00:00 <input type="checkbox"/> Sunday <input type="checkbox"/> Monday <input type="checkbox"/> Tuesday <input type="checkbox"/> Wednesday <input type="checkbox"/> Thursday <input type="checkbox"/> Friday <input type="checkbox"/> Saturday
#15	Alarm Out <input type="button" value="v"/> OFF/HIGH <input type="button" value="v"/> Disabled <input type="button" value="v"/> 00:00 to 00:00 <input type="checkbox"/> Sunday <input type="checkbox"/> Monday <input type="checkbox"/> Tuesday <input type="checkbox"/> Wednesday <input type="checkbox"/> Thursday <input type="checkbox"/> Friday <input type="checkbox"/> Saturday
#16	Alarm Out <input type="button" value="v"/> OFF/HIGH <input type="button" value="v"/> Disabled <input type="button" value="v"/> 00:00 to 00:00 <input type="checkbox"/> Sunday <input type="checkbox"/> Monday <input type="checkbox"/> Tuesday <input type="checkbox"/> Wednesday <input type="checkbox"/> Thursday <input type="checkbox"/> Friday <input type="checkbox"/> Saturday

Logging schedule

Disabled <input type="button" value="v"/> 00:00 to 00:00 <input type="checkbox"/> Sunday <input type="checkbox"/> Monday <input type="checkbox"/> Tuesday <input type="checkbox"/> Wednesday <input type="checkbox"/> Thursday <input type="checkbox"/> Friday <input type="checkbox"/> Saturday
If set to Disabled , then the unit will always log sensor values and check for new alarms. If set to Enabled , then specified time is the only time it will log sensor values, log alarms, transmit alarms (SNMP or e-mail) or set digital outputs because of alarms. Regardless of this setting or schedule, alarms will always be cleared when the alarm condition has passed.

Copyright © 2017 [DuraComm](#) Corporation

Figure 12

The admin user can set custom names for each input or output. Factory set names will be supplied, but they can be re-written to be more descriptive or to manage larger systems. Alarm colors can be set here to represent the proper logical state for your system. Digital inputs can also be set here to send notification emails to the email address configured in the Email Setup screen. If any of the name fields on the left are left blank, the channel will be hidden on the status screen. Inputs and outputs of the HE1U-XX12-MU board are wired as shown on the Sensor Setup screen.

The user can enter text to change the user meaning of the digital output states, and there are 3 color options for the buttons. "Active" means that the digital output MOSFET is conducting. Digital Outputs can also be configured to output a pulse with a selectable duration.

PWM is not functional in the Rev 2 RMCU hardware of the standard hE1U-XXX12-BMS-MU.

Digital Outputs and Logging can be configured to turn on and off according to a schedule. 16 schedules can be set for outputs, and one for logging.

Alarm Setup

Status	Device Setup	Sensor Setup	Alarm Setup
User Setup	Network Setup	E-Mail Setup	Logout (control)

Alarm Setup

Analogs
Amps Power Supply ▾

Under alarm

Threshold: < Amps

Allow auto Recovery: ▾

Recovery: Amps

Send e-mail: ▾

Alarm contacts: Alarm Out
 Power Supply ON/OFF
 Battery ON/OFF

Over alarm

Threshold: > Amps

Allow auto Recovery: ▾

Recovery: Amps

Send e-mail: ▾

Alarm contacts: Alarm Out
 Power Supply ON/OFF
 Battery ON/OFF

Duration required: ▾

External Temperature

Under alarm

Threshold: < F

Allow auto Recovery: ▾

Recovery: F

Send e-mail: ▾

Alarm contacts: Alarm Out
 Power Supply ON/OFF
 Battery ON/OFF

Over alarm

Threshold: > F

Allow auto Recovery: ▾

Recovery: F

Send e-mail: ▾

Alarm contacts: Alarm Out
 Power Supply ON/OFF
 Battery ON/OFF

Duration required: ▾

Figure 13: Analog Input & Temperature Alarm Setup

Line AC

Under alarm

Threshold: < Volts

Allow auto Recovery:

Recovery: Volts

Send e-mail:

Alarm contacts: Alarm Out
 Power Supply ON/OFF
 Battery ON/OFF

Over alarm

Threshold: > Volts

Allow auto Recovery:

Recovery: Volts

Send e-mail:

Alarm contacts: Alarm Out
 Power Supply ON/OFF
 Battery ON/OFF

Duration required:

Digital Inputs Alarm In

Alarm Condition:

Email:

Duration required:

Digital Outputs

Alarm Out:

Power Supply ON/OFF:

Battery ON/OFF:

:

Global settings

Log all alarms:

Figure 14: Line AC & Digital Alarm Setup

Analog alarms are set up in the “Alarm Setup” screen. See the “Alarm Setup” section for more information. Analog channels #1 thru #4 are the only ones wired and configured in the HE1U-XX12-MU.

In the HE1U-XX12-MU the Digital Output 1 is an alarm output, Digital Output 2 controls the ON/OFF state of the power supply, and Digital Output 3 controls the Battery Disconnect. The user must be logged in as the admin or control user to control the digital outputs. The digital outputs can be controlled by the buttons on the status page, mobile page, or via SNMP on the HE1U-XX12-MU. Optionally, they can be automatically controlled by connecting them to an alarm on the “Alarms” screen.

To set up analog alarms, first, you must select the alarm channel to set. This is accomplished by selecting the custom name of the channel in the drop-down box next to the “Analog” label. For example, we are looking at the settings for the “Amps Power Supply” channel in the screen above.

This screen is where thresholds are set to define alarm conditions for the analog channels. You can choose to set an email notification when the alarm conditions are met.

The “Log Alarms” setting on the “Device Setup” Page, is the same as the “Global Settings”, “Log All Alarms” setting on this page.

Factory Default Analog Alarm Settings

Table 3

MEASUREMENT	UNITS	OVER ALARM	OVER ALARM RECOVER	UNDER ALARM	UNDER ALARM RECOVER
AC Line Voltage	Volts	140	135	100	107
Temperature	Fahrenheit	150	145	40	45
Amps Power Supply	Amps	1000	0	-1000	0
Amps Battery	Amps	1000	0	-1000	0
Volts Power Supply	Volts	16	15	8	13
Volts Battery	Volts	15	14.8	12	13

Remote Monitoring and Control Status Page



SITE CENTRI© - HE1U-2012-BMS-MU

Status	Device Setup	Sensor Setup	Alarm Setup
User Setup	Network Setup	E-Mail Setup	Login

SITE CENTRI© Status

AC Line: 116.7 Volts	<input checked="" type="checkbox"/>
Amps Power Supply: 10.2 Amps	<input checked="" type="checkbox"/>
Amps Battery Mode: 0.0 Amps	<input checked="" type="checkbox"/>
Volts Power Supply: 14.1 Volts	<input checked="" type="checkbox"/>
Volts Battery: 13.2 Volts	<input checked="" type="checkbox"/>
Alarm In: CLOSED	<input checked="" type="checkbox"/>
DC-OK Power Supply: CLOSED	<input checked="" type="checkbox"/>
Alarm Out: OFF/HIGH	<input checked="" type="checkbox"/>
Power Supply ON/OFF: ON	<input checked="" type="checkbox"/>
Battery ON/OFF: ON	<input checked="" type="checkbox"/>
Temperature: 90.5 F	<input checked="" type="checkbox"/>

[Download Log](#) - Right click to save

Copyright © 2017 DuraComm © Corporation

Figure 15

This screen shows the status of all analog and digital inputs. A user can also download the Log file from this page. AC Voltage is approximate.

A simplified version of the status page is available for mobile devices. Just use the same IP address and add '/m'. For example, 192.168.100.220/m

RCMU - HE1U-2012-BMS-MU Line Voltage: 117.4 Volts Temperature: 88.8 F		
Amps Power Supply 10.2 Amps	Amps Battery Mode 0.0 Amps	Volts Power Supply 14.1 Volts
Volts Battery 12.9 Volts	---	---
Alarm In CLOSED	DC-OK Power Supply CLOSED	
---	---	
Alarm Out OFF/HIGH	Power Supply ON/OFF ON	
Battery ON/OFF ON	---	

Figure 16: Simplified Version of Mobile Screen

Section 4 | Operation

Connect the cables as shown in the installation section. Make sure the main power and battery are turned on. A green LED should indicate that the power supply is active. The battery LED will show red or green depending on the status of the battery. The front display will indicate the outputs of the unit.

Make sure that the unit is configured to work with your network, and that your network is configured to allow the device to work properly.

Make sure that all controls are 'ON'. For the Battery backup to work, the LVD must be ON (battery voltage above 12.5 if charging from below 10.4 VDC), front panel 'Battery Disconnect' switch is in ON(1) position (see figure Figure 17), and the 'Battery ON/OFF' switch on the Status page is 'ON' (see Figure 15).

Front Panel Controls

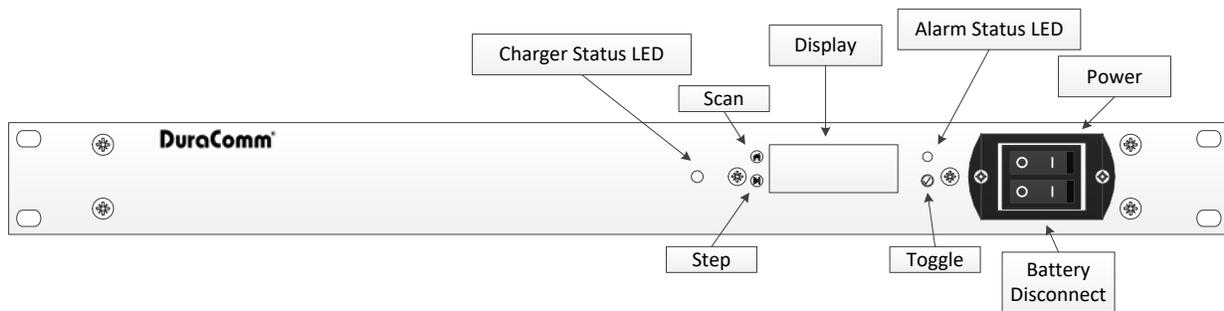


Figure 17

The screen will auto-scroll through the status sensors of the power supply.

Pressing the  button at any time will exit the current menu and display the hardware and firmware version of the remote monitoring unit, then return to scrolling.

Pressing the  button will manually scroll through the sensors and the digital inputs and outputs of the device.

The  will toggle the currently selected output ON and OFF.

Battery

The battery on the HE1U-XX12-MU is used to back up the real-time clock for logging purposes. Logged in users can see the current system time on the Device Setup page under Date and Time settings.

Conductor Pretreatment

All kinds of copper conductors can be clamped without treatment. DO NOT solder tin stranded conductors. The solder yields and fractures under high pressure. The result is increased contact resistance and excessive temperature rise. Additionally, corrosion has been observed due to the fluxes. Notch fractures at the transition from the rigid tinned part to the flexible conductors are also possible. Ferrules can be used as a protection when wiring stranded conductors. Copper ferrules prevent the current transfer from being influenced by dissimilar metals and remove the risk of corrosion. Always use the correct tool to crimp the ferrule.

Recommended Copper Wire Size for Current Capacity

(Insulated Wire, Single Conductor in free air)

Table 4

Current Level in Amperes	Wire Size Requirements According to MIL-W-5088B	
	Up to 5 feet	Up to 10 feet
<7 AMPERES	20 AWG	18 AWG
14 AMPERES	18 AWG	16 AWG
20 AMPERES	16 AWG	14 AWG
30 AMPERES	14 AWG	12 AWG
40 AMPERES	12 AWG	10 AWG
50 AMPERES	10 AWG	8 AWG
70 AMPERES	8 AWG	6 AWG
100 AMPERES	6 AWG	4 AWG

Section 6 | Specifications

Models		HE1U-2012-BMS-MU	HE1U-5012-BMS-MU	HE1U-12012-BMS-MU
Output	DC Voltage	13.8		
	Voltage Tolerance	+/-1%		
	Output Amperage Max	22 A	50 A	100 A.
	Maximum Power, continuous	330 Watts	750 Watts	1410 Watts
	Maximum Ripple and Noise	150 mV p-p max		
	Rise Time following ON	60 mS		
	Hold Up Time, Typical	16 mS		
Input	Input Voltage, Switch Selectable	90 to 130 VAC (115 VAC), or 180 to 264 VAC (230 VAC)		
	Input Frequency Range	47-63 Hz		
	AC Current, Typ	8.2 A @ 115 VAC; 3.9 A @ 230 VAC	11.2 A @115 VAC; 5.4 A @ 230 VAC	17 A @ 115 VAC, 9.5 A @ 230 VAC
	Efficiency, Typ	88%	89%	89%
	Max Inrush Current, single cycle	35 A @ 115 VAC 70 A @ 230 VAC	25 A @ 115 VAC 40 A @ 230 VAC	35 A @ 230 VAC
Protections	Short Circuit Protection	Constant Current Limiting (see overload protection, re-power on to recover)		
	Overload Protection (operates) % of rated output power	105 to 135 %	105 to 125 %	105-115 %
	Overvoltage Protection (VDC)	14.4 to 16.8	17 to 20.5	15.75 to 18.75
	Line Regulation	+/- 0.5 %		
	Load Regulation	+/- 0.5 %		
	Over Temperature	>195 F (90 C) auto output shutdown		
Temp.	Working Temperature Range	-22 F to +158 F (-30 C to +70 C)		
	Storage Temperature	-40 F to +185 F (-40 C to +85 C)		
Safety	Withstand Voltage	3 KVAC @ 10 ma (I/P-O/P)/1 min, 2 KVAC @ 10 ma (I/P-FG)/1 min, 500 V @ 10 ma (O/P-FG)/1 min		
RMCU	Hardware Revision	2.0		
	Firmware Revision	3.10		
	Network Connector	RJ-45 (10/100 Ethernet) with activity LEDs		
	Backup Battery	CR2032		
	Memory Card	4GB Micro SD		
	AC Voltage Measurement Range	0 VAC RMS to 300 VAC RMS		
	DC Voltage Measurement Range	0 VDC to 20 VDC	0 VDC to 20 VDC	0 VDC to 20 VDC
	DC Current Measurement Range (Amps)	0 to 50	0 s to 75	0 to 75
	Digital Alarm input	Normally Closed Contacts (5V to Alarm IN)		
	Alarm Output	Open Collector, 60 VDC Max, 500 mA sink Max		
	Alarm Response Time	250ms		
	Alarm Notifications	Email and/or SNMP		
	Logging Rate	1 minute resolution, 1 minute to 1 hour		
	Log Download Format	Comma Separated Values (CSV) File		
	SNMP MIB File	Download from Device Setup Page		
5V Supply Maximum Current	300 mA			

Battery Backup & Charger	Maximum Power, continuous (Battery Charge)	99 Watts
	Auto-revert to Battery or Power Supply	provided by a dual Schottky diode in OR configuration
	Maximum Output Current in Battery Mode	75 Amps (limited by Schottky diode)
	Maximum Charge Voltage	13.8 VDC
	Maximum Recharge Rate	7.2 Amps with auto-sensing of charge current
	Charger Protection	Overload/voltage/temperature/reverse polarity protected
	Dead Battery Protection	Short circuit protected with deep discharge start function
	Visual Indication	Bi color LED indication: Red = high rate charge, Green = Float charge
Low Voltage Disconnect with Relay	Maximum Interrupt Current / continuous current	75 Amps DC
	Disconnect Voltage	10.4 VDC
	Reconnect Voltage	12.5 VDC

Section 7 | Warranty

DuraComm warrants to the initial end user, each power supply manufactured by DuraComm to be free from defects in material and workmanship when in normal use and service for a period of three years from the date of purchase from an authorized DuraComm dealer.

Should a product manufactured by DuraComm fail or malfunction due to manufacturing defect, or faulty component, DuraComm, at its option, will repair or replace the faulty product or parts thereof, which, after examination by DuraComm, prove to be defective or not operational according to specifications in effect at the time of sale to the initial end user. The product that is replaced or repaired under the provisions of this warranty will be warranted for the remainder of the original warranty period, only, and will not extend into a new three year warranty period.

The limited warranty does not extend to any DuraComm product which has been subject to misuse, accidental damage, neglect, incorrect wiring not associated with the manufacturer, improper charging voltages, or any product which has had the serial number removed, altered, defaced, or changed in any way.

DuraComm reserves the right to change, alter, or improve the specifications of its products at any time, and by so doing, incurs no obligation to install or retrofit any such changes or improvements in or on products manufactured prior to inclusion of such changes.

DuraComm requires any product needing in or out of warranty service to be returned to DuraComm. All requests for warranty service must be accompanied by proof of purchase, such as a bill of sale with purchase date identified. DuraComm is not responsible for any expenses or payments incurred for the removal of the product

from its place of use, transportation or shipping expenses to the place of repair, or return expenses of a repaired or replacement product to its place of use.

The implied warranties that the law imposes on the sale of this product are expressly LIMITED, in duration, to the three (3) year time period specified herein. DuraComm will not be liable for damages, consequential or otherwise, resulting from the use and operation of this product, or from the breach of this LIMITED WARRANTY. Some states do not allow limitations on the duration of the implied warranty or exclusions or limitations of incidental or consequential damages, so said limitations or exclusions may not apply to you. This warranty gives you specific legal rights which vary from state to state. This warranty is given in lieu of all other warranties, whether expressed, implied, or by law. All other warranties, including WITHOUT LIMITATION, warranties of merchantability and fitness or suitability for a particular purpose, are specifically excluded. DuraComm reserves the right to change or modify its warranty and service programs without prior notice.

Section 8 | Contact Us

Location

6655 Troost Avenue
Kansas City, MO. 64131

Phone Numbers:

816-472-5544
800-467-6741

Fax Number:

816-472-0959

Email Purchase Orders to

order@duracomm.com

www.DuraComm.com

