

RM-DC-RMCU-8G SITEGRAPH

1U DC-Powered Remote Monitoring and Control Unit

Owners Guide

(These instructions are intended for use by a technician familiar with electronic products)

Product

- DC-Powered Remote Monitoring and Control Unit for Remote Site Management and Industrial Internet of Things (IIoT) Applications.
- Graphing for Each Analog Input.
- Flexible mounting: slim 1RU rack chassis with moveable mounting brackets for rack or wall mount.
- Accessory Kit Supplied
- 3 Year Warranty

Hardware

- Universal DC power input: 9 ~60 VDC.
- 8 Analog inputs using 24 bit ADCs:
 - 4 AC or DC voltage sensors (jumper selectable) (Ch1 to Ch4)
 - 4 DC only voltage sensors (Ch5 to Ch8)
 - DC range -100 to +100 VDC or -2 to +2 VDC (jumper selectable), 2% accuracy
 - AC range 30 to 300 VRMS AC, 2% accuracy
 - Standard Configuration:
CH 1 & Ch2 configured for AC.
CH3 configured for Amperage with included external shunt for +100 to -100 amps at 2% accuracy.
Ch4 thru Ch8 configured for +/- 100VDC.
 - Up to 7 additional DC current sensors can be added. Each sensor uses 1 of the DC or AC voltage inputs. Additional sensors must be purchased separately and installed /calibrated at the factory.
- 1 internal temperature and humidity sensor
- 1 external temperature probe (TC74)
- User selectable Fahrenheit or Celsius scales
- Additional temperature sensors can be added. These are LM35 Sensors. Additional sensors must be purchased separately and installed/calibrated at the factory. Each sensor uses one of the 8 analog channels.
- 10 fully opto-isolated digital inputs for door alarms, status inputs, and DC-OK signals
- 8 fully opto-isolated digital outputs for logic, alarms, relays, and switches, with Single Pulse and PWM capability.
- 4 Digital to Analog outputs with 0 to 10 Volt Output.
- TCP/IP communication through a standard RJ-45, 10/100 Ethernet

Firmware (Version 3.15)

- Web Ready / Web GUI / Mobile Status Page
- Graphing of data for each analog input.
- Bar Graphs with Alarm settings and Alarm Status Color.



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SITEGRAPH

- HTTPS self-generated web page. Plug-and-Play. No downloads or additional software required.
- User customizable inputs and outputs.
- Email alerts and scheduled status emails.
- User configurable alarm thresholds and delays with auto or manual recovery.
- Remote power cycling (on/off or momentary) of circuit breakers, repeaters, routers, power supplies, etc through Digital Outputs.
- SNMP v1, v2, & v3 integration with MIB from DuraComm.com
- SMTP/POP3 – email alerts
- 2 User Levels with different permissions
- Admin Can Configure up to 8 Users with 2 Different Permission Levels.
- Manual or NTP Time Setting
- Log and Download Time stamped Readings and Alarms, stored on internal SD card and downloadable .CSV file
- Custom User Units and calibration for Linear Transducers
- Control Digital Outputs based on Analog Input Alarm.
- Schedule Digital (GPIO Mode) or Analog Output Changes at Specific Times.
- SNMP Version 1, 2 and 3 compatible
- Configurable Labels and Buttons for Each Digital Output.
- Optional Analog Input Averaging.
- Configure Analog and Digital Alarm Delay Duration (Holdoff) before triggering to Avoid Transient Alarms.
- Remote reboot.
- User controlled remote software update over TCP/IP
- Easy to use screw terminal blocks

SITEGRAPH DESCRIPTION

The new SITEGRAPH DC-Powered Remote Monitoring and Control Unit (RMCU) is flexible product for remote site monitoring and control, and Industrial Internet of Things (IIoT) applications. The SITEGRAPH provides 8 high-resolution analog inputs, 10 digital inputs, 8 digital outputs, and 4 analog outputs that are highly configurable. All of these channels are visible on the home page with alarm status, and all analog channels are displayed as bar graphs with alarm setting indicators, and alarm status color.

Four of the analog inputs can be configured as AC or DC inputs via jumper, the other four are DC only. AC Voltage measurement is configured via jumper and calibrated at the factory for 30 to 300 V RMS, and DC measurement can be configured via jumper, with a separate jumper for +/- 100 VDC or +/- 2 VDC range. Measurement function (AC or DC) must be set and calibrated at the factory. DC values can be fine-tuned or converted and calibrated to user units in the field or at the factory.


Digital outputs can be configured for simple ON/OFF, Pulse, or PWM operation. Digital Inputs can be configured to show OPEN or CLOSED contacts, Pulse Count, or Frequency count within ranges.

The standard configuration from DuraComm is as follows:

- Analog Channels 1&2: AC Voltage Measurement
- Analog Channel 3: Amperage (+/- 100 Amps)
- Analog Channels 4 thru 8: +/- 100 VDC
- Digital Inputs: 1 thru 10, Open/Closed
- Digital Outputs: 1 thru 8: GPIO (Open/Closed)
- DAC Outputs: 0 VDC

Changes to digital outputs or analog outputs can be scheduled to happen at specific times and days of the week.

Alarms and email notifications can be configured for the analog and digital inputs. Temperature alarms can be set for the external temperature. The SITEGRAPH also sends SNMP Traps for alarm conditions. The SITEGRAPH can also be set to log measurements to an internal micro SD card, and the measurements are time-stamped with a real-time clock.

Guest users will see the status page that displays the measured values and alarm condition of all active channels, temperature value and alarm condition, as well as alarm input status, and control status. The default status page shows bar graphs of the analog channels, with alarm status color, and alarm limit settings, if they are within the bar chart limits. Click the “See charts” button to display the line charts for the analog channels. Each graph displays 1440 points of data, sampled at a configurable rate from 1 min (1 day chart) to 28 minutes (4 week chart). You can also switch to the live view that charts data taken approximately every 0.5 second. [Live View is for display only](#). Archive charts can be downloaded as a CSV file by clicking the  icon for each channel.

A mobile friendly version of the status page is also included that shows measured values and alarm condition.

NOTE: If the SITEGRAPH board is installed in a product such as a power supply or other focused product, some channels or features may not apply. Unused channels and features are hidden or grayed out to simplify the user interface for that product.

Admin and Control Users will be able to configure all of the input and output settings, and set the state of the digital outputs. Admin and Control users can set device settings for logging, time, and Site Name. Admin users have exclusive control of network configuration, including manual time setting or NTP, soft reboot of the SITEGRAPH, factory reset of the entire configuration, and user passwords.

The SITEGRAPH comes with the DuraComm three-year warranty.

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SPECIFICATIONS











Hardware Revision	3.0
Firmware Revision.....	3.15
DC Input Power.....	9 to 60 VDC @ 500 mA max
Internal +5VDC supply current (Source for external Logic)	300 mA Max
Analog (Voltage) Isolated Input Channels (8 channels – Factory Configured and Calibrated)	
AC Measurement (AC Jumper in place).....	30 to 300 VAC RMS, +/- 2%
DC Measurement 100 V Range (DC Jumper in Place – Without 2 V Jumper)	+/- 100 VDC, +/- 2%
DC Measurement 2 V Range (DC Jumper in Place – With 2 V Jumper in place)	+/- 2 VDC, +/- 2%
Digital to Analog Outputs (4 Channels)	0 to 10 V, 20 mA max
Digital Alarm Input Channels (10 channels – fully Isolated)	LED with 220 Ohm Series Resistor, 50 mA Max (per channel)
GPIO CLOSED	5 VDC from Input + to Input –, Use External Resistor in series to Increase Voltage Tolerance for 15 mA
GPIO OPEN	0 VDC from Input + to Input –
Pulse Count	Use GPIO Levels above for p-p input
Freq	Use GPIO Levels above for p-p input, Ranges 4 Hz to 2.4 KHz, 15 Hz to 9 KHz, 120 Hz to 75 KHz, 1 KHz to 600 KHz
.....	Accuracy, 1Hz
Digital Output Channels (8 Channels– Fully Isolated)	
GPIO (Active, Inactive or Single Pulse Modes).....	Open Drain FET, 60 VDC Max, 500 mA sink Max (per channel)
PWM (All Channels – Full Isolation Jumper in place for CH 7 thru Ch 10).....	125 Hz Max (Duty Cycle = Active/Period)
PWM (Ch 7 thru Ch 10 – Isolation Bypass Jumper in place)	TTL Logic, reference = G, Select 750 Hz, 7.5 KHz, 75 KHz
Network Connector.....	RJ-45 (10/100 Ethernet) with activity LEDs
Backup Battery (for Real Time Clock)	CR2032
Memory Card	Micro SD
Alarm Notifications	Email and/or SNMP
Logging Rate.....	1 minute resolution, 1 minute to 1 hour
Log Download Format	Comma Separated Values (CSV) File
Line Chart Archive Sample Rate (Minutes) = chart width (1440 samples). Download is .CSV file for each Channel.	
.....	1 Min=1 Day, 2 Min=2 Days, 7 Min=1 Week, 14 Min=2 Weeks, 28 Min=4 Weeks
Line Chart Live Sample Rate (Approximate)	0.5 seconds/sample
Temperature Measurement (Internal).....	-40 C to 125 C, +/- 1 C
Humidity (Internal)	0 to 100 %, +/- 5%
Temperature Measurement (External)	+77 F to +185 F (+25 C to +85 C), +/- 2%
.....	+32 F to +257 F (+0 C to +125 C), +/- 2%
Working Temperature Range	-22 F to +140 F (-30 C to +60 C)
Storage Temperature	-40 F to +185 F (-40 C to +85 C)
Dimensions	1.75" H x 19" W x 10.25" D
Weight.....	5.1 lbs.

ACCESSORY KIT (INCLUDED)

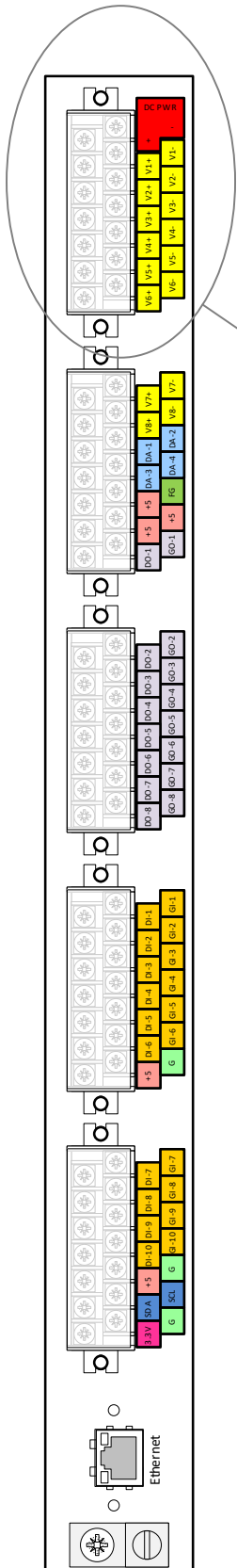
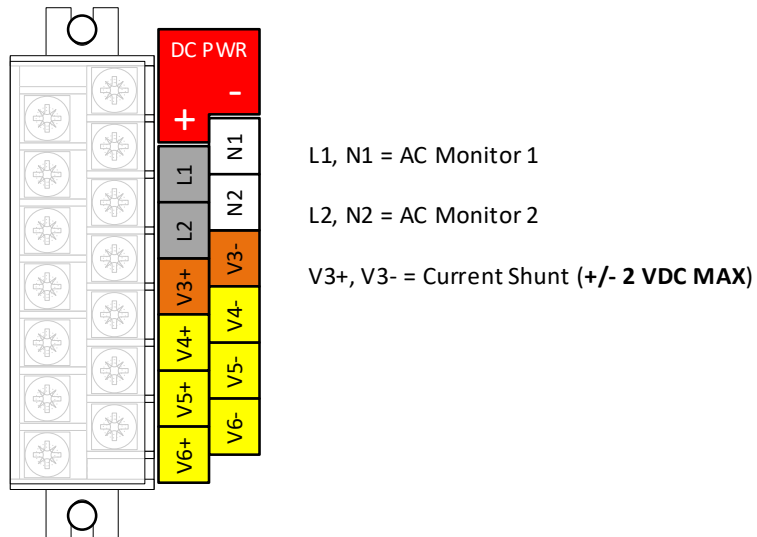
Ethernet Cable	3 feet
Current Measurement Shunt.....	100 Amp / 50 mV
Temperature Sensor	TC74A5-3.3VAT with 18" Shielded Cable (Shield attached to tab of sensor and G)

INSTALLATION

Generic Connector Layout

-  DC Power to SITEGRAPH, 0-60VDC
-  Analog (ADC) Inputs V1 thru V8
-  Analog (DAC) Outputs (0-10 VDC) DA-1 thru DA-4
-  +5 VDC Power From SITEGRAPH
-  Digital Outputs DO-1 thru DO-8
-  Digital Inputs DI-1 thru DI-10
-  Ground for +5 and +3.3 VDC Power From SITEGRAPH
-  I2C Clock and Data for TC74 External Temperature
-  + 3.3 VDC for TC74 External Temperature
-  Frame Ground

Standard Configuration V1, V2, V3



Ethernet

Frame Ground

Input Power

Connect the SITEGRAPH DC PWR connections on the power strip. Please be sure to connect the positive terminal to the positive(+) supply lead, and the negative terminal to the negative(-) supply lead. The supply voltage may be 9 VDC to 60 VDC. Connect Frame Ground to site ground system.

NOTE: The SITEGRAPH is "ON" as soon as power is applied.

10/100 Ethernet

Connect the RJ-45 on the SITEGRAPH to your network with an Ethernet patch cable. A short 3 foot cable is provided with the SITEGRAPH.

NOTE: The USB connector on the board is for factory diagnostics only.

SITEGRAPH BOARD LAYOUT AND CONFIGURATION

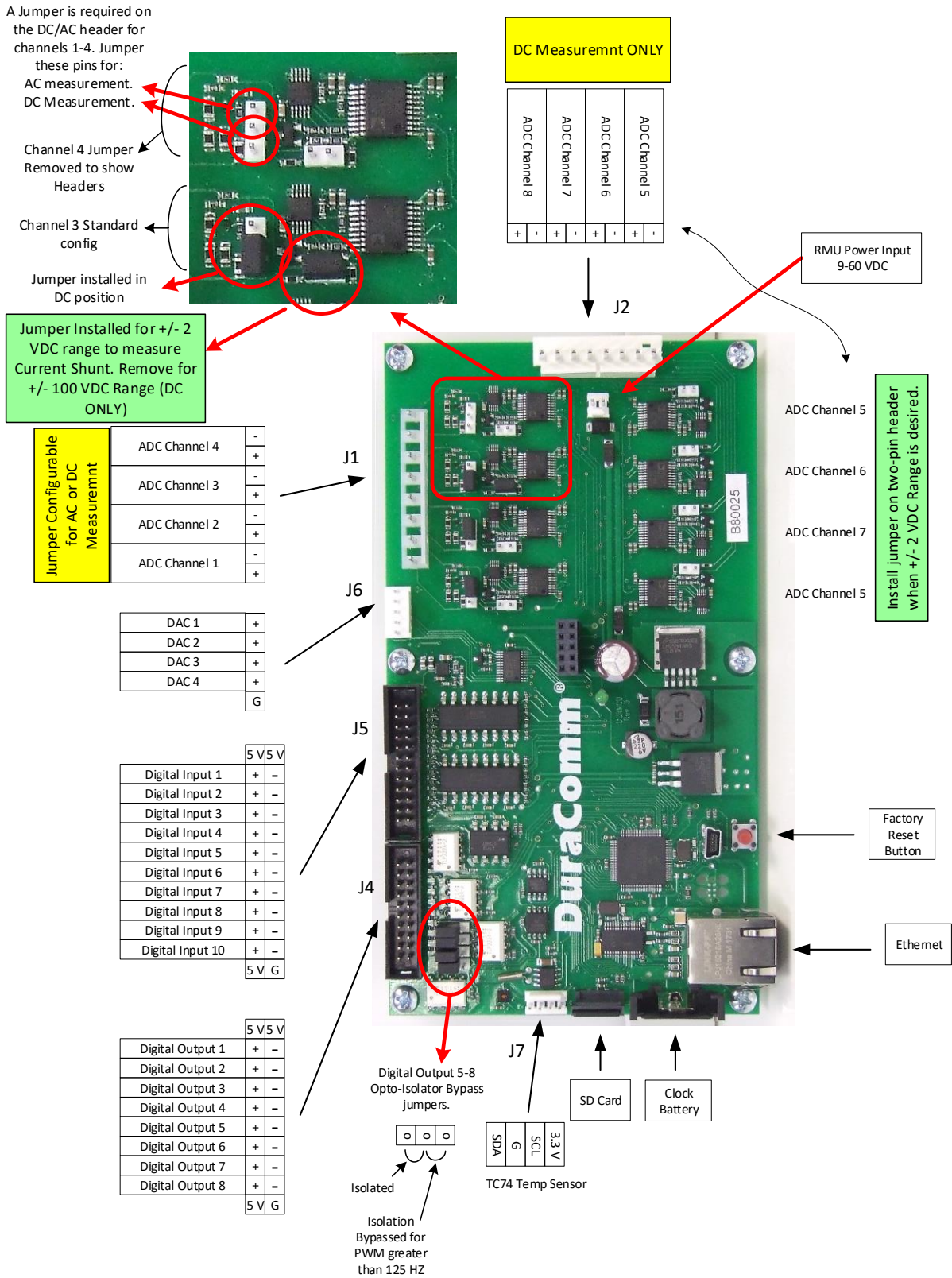


Figure 1: PCB Layout. See the Sensor Setup Section for sensor wiring and configuration.

CONNECTING TO THE SITEGRAPH VIA THE INTERNET

Prerequisites

System administrators must decide whether the SITEGRAPH will operate on the network with DHCP or a fixed IP address. The factory-set SITEGRAPH 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 SITEGRAPH 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 SITEGRAPH

Power up the SITEGRAPH then connect the SITEGRAPH to the network with an Ethernet cable. A 3 foot cable is provided.

Using DHCP

The SITEGRAPH will attempt to connect to the network via DHCP when it is first connected, or when you perform a factory reset.

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 SITEGRAPH, then proceed to the section in this manual named "**Open a Web Connection to the SITEGRAPH**".

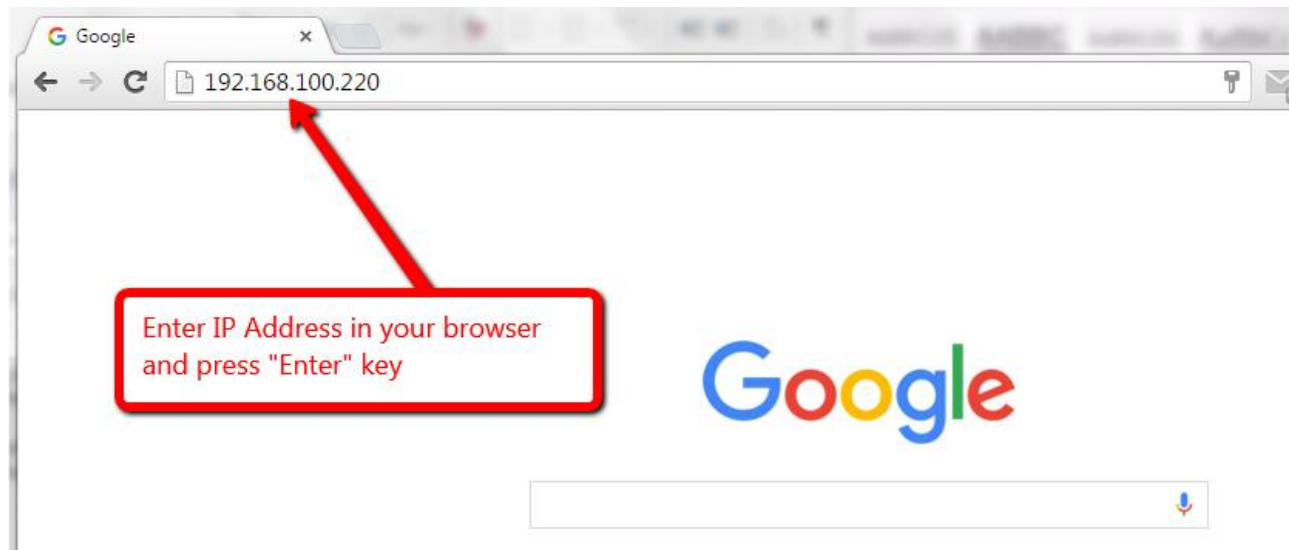
Using Static SITEGRAPH IP and Network Configuration

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 SITEGRAPH 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 the SITEGRAPH 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 SITEGRAPH.
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 owners guide named "**Open a Web Connection to the SITEGRAPH**" to log in and enter the final network settings for the SITEGRAPH.

Open a Web Connection to the SITEGRAPH

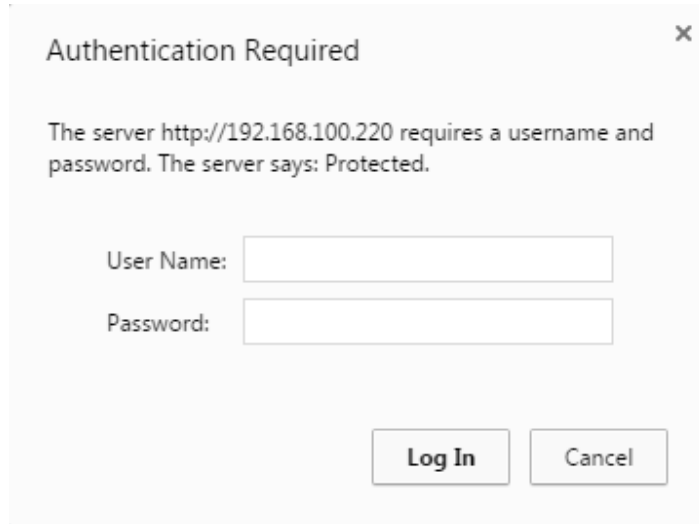
Use your favorite device and browser (Chrome, Firefox, internet Explorer, etc.), and enter the IP address of the power supply on your network into the URL box on the browser (see the screenshot below). The SITEGRAPH should respond with the "Status" screen.



REMOTE MONITORING AND CONTROL SETUP

Click "Network Setup" in the menu at the top of the screen. All setup requires an administrative user to log into the SITEGRAPH. See default passwords below.

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

Enter the user name and password. Factory default usernames and passwords are as follows:

Admin Users have full control of the device.

Username: admin
Password: admin

Control users have limited control capability.

Username: control
Password: control

These two users are the only ones pre-configured in the SITEGRAPH. "Control" users can access all screens except the User Setup screen. See the User Setup section for more information.

NETWORK SETUP

SITEGRAPH - RMCU

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

TCPIP Setup

MAC Address: 70:B3:D5:6B:38:86

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

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Network Setup Notes

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 SITEGRAPH. 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 SITEGRAPH can be downloaded from the SITEGRAPH after you connect to it with your browser. Go to the Device Setup page and log in to the SITEGRAPH. 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 SITEGRAPH.

When the MIB file has been loaded, complete the “SNMP Setup” section on the “Network Setup” page of the SITEGRAPH to configure it for use with your monitoring solution. User-specific authentication for SNMPV3 can be set up on the “User Setup” page by users with Admin permissions.

The SITEGRAPH will send traps for all configured alarm conditions including bootup, temperature, analog alarms, and digital alarms.

The MIB file is not compatible with previous versions of firmware. Please make sure you are using the MIB file downloaded from the “Device Setup” page in this firmware, if you are using SNMP monitoring.

NOTE: To hard reset your device back to factory network settings, press the red button on the SITEGRAPH PCB and hold it for more than 20 seconds. You will need to re-connect to the SITEGRAPH through your web browser by entering the factory supplied IP address and HTTP port (see Network Setup). Using the factory reset here or using the red button to reset will change the network settings back to the factory reset/default values shown in this manual on the network configuration page, even if your unit was custom set at the factory to a user IP address. If your unit was set to a custom IP address, it will be labeled underneath the product label on the side of the SITEGRAPH. You will need to re-configure the network settings to your network.

EMAIL SETUP

SITEGRAPH - RMCU

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.

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Email Setup Notes

Enter the required email setup parameters given to you by your System Administrator. You can also send a test email from this screen. An email relay service (such as [smtp2go.com](#)) may be needed if you have difficulty setting up your SSL mail connection, as with Gmail. There may additional requirements, since email security changes rapidly.

To send periodic "Heartbeat" emails to get status notifications, even when there is no alarm condition, select from a drop-down list of 1, 6, 12, or 24 hour intervals. Optionally you can set a start time by enabling it, and entering a start time in "HH:MM" 24-hour format.

DEVICE SETUP

SITE CENTRI© - RMCU

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

Device Setup

Device Info

Site Name:
Model: RMCU
Serial Number: 80040
Version: HW: 3, FW: 3.15

Logging

Logging rate: Minutes
Log start date: Tue, 25 Sep 2018 13:07:35
Last log date: Tue, 25 Sep 2018 13:07:35
Clear Log?
Append Now?
Log Alarms?
Logging status: Never used
Download log: [RMCU.CSV](#)
Right click to save

Archive graphing

Archive logging rate:

SNMP MIB File Download

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

Date and time settings

Current system time: Thu, 27 Sep 2018 14:11:05
NTP Servers:

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

Miscellaneous

Significant digits:
Temperature units:

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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 SITEGRAPH will log all measurements and alarms to an SD card that is plugged into the SITEGRAPH 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. You can also examine the log file using a terminal connection through the USB port. If the SD card fills up, the oldest sample is discarded when a new one is stored. The SITEGRAPH custom site name under Device Settings is stored with the logged data, so that the source of the card can be identified after it removed from the SITEGRAPH.

A SITEGRAPH connected to a battery backup power system can monitor and log information about AC mains power outages, as well as all the other measurements for as long as the battery backup lasts. When a log file reaches 5 MB, it is renamed, and a new one is started. **Download and save all log files to your computer before clearing the log or data will be permanently lost.**

The SITEGRAPH has the ability to save log entries when an alarm occurs by choosing “Log Alarms” > “Yes”. You can log alarms, log periodically by setting the “Logging Rate” minutes, log both, or log none by choosing “Log Alarms”>”No” and setting the “Logging Rate” to “0”. The Alarm log entry is identified with label entry before the data entry, as in this example:

```
Jan 20 14:53:44 2016, ALARM, Digital output #1 inactive
Jan 20 14:53:44 2016, RMCU, Temp, 70.2 F, AC Line, 120.160 Volts, Ammeter #1, 100.0 Amps,
Voltmeter #1, 0.0 Volts, Voltmeter #2, 0.0 Volts, Voltmeter #3, 0.0 Volts, Voltmeter #4, 0.0
Volts, Voltmeter #5, 0.0 Volts, Alarm contact #1, Open, Alarm contact #2, Open, Alarm contact #3,
Open, Alarm contact #4, Open, Output #1, OFF/HIGH, Output #2, OFF/HIGH, Output #3, OFF/HIGH,
Output #4, OFF/HIGH
```

Archive graphing

Set the archive graphing sample rate for all analog channels by selecting the sample rate from the dropdown list. With 1440 samples for each graph you can see the following time spans: 1 Min (1 Day), 2 Min (2 Days), 7 Min (1 Week), 14 Min (2 Weeks), 28 Min (4 Weeks). This does not change the “Live View” mode which samples as fast as the

Date and Time Settings

Configuration for all date and time settings. Date and time is 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.

NTP servers can be used by entering **0.north-america.pool.ntp.org**, or another NTP server address into the **NTP Server box. Your networking firewall must allow access to this server.** An alternate NTP server can be configured in the second box.

Miscellaneous Settings

The number of significant digits to the right of the decimal point for the analog channels can be configured here. You can select up to 5 digits to the right of the decimal point.

Temperature can be configured to read in Fahrenheit or Celsius.

SENSOR SETUP

SITEGRAPH - RMCU

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

Sensor Setup

	Analog Inputs	Alarm color	Averaging
#1	AC Monitor #1	<input checked="" type="radio"/> Red <input type="radio"/> Green	2 samples ▾
#2	AC Monitor #2	<input checked="" type="radio"/> Red <input type="radio"/> Green	2 samples ▾
#3	Amp Meter #1	<input checked="" type="radio"/> Red <input type="radio"/> Green	5 samples ▾
#4	Voltmeter #1	<input checked="" type="radio"/> Red <input type="radio"/> Green	5 samples ▾
#5	Voltmeter #2	<input checked="" type="radio"/> Red <input type="radio"/> Green	5 samples ▾
#6	Voltmeter #3	<input checked="" type="radio"/> Red <input type="radio"/> Green	5 samples ▾
#7	Voltmeter #4	<input checked="" type="radio"/> Red <input type="radio"/> Green	5 samples ▾
#8	Voltmeter #5	<input checked="" type="radio"/> Red <input type="radio"/> Green	5 samples ▾

	Digital Inputs	Alarm / Open	Type	Averaging
#1	Alarm contact #1	<input checked="" type="radio"/> Red <input type="radio"/> Green	GPIO ▾	None ▾
#2	Alarm contact #2	<input checked="" type="radio"/> Red <input type="radio"/> Green	GPIO ▾	None ▾
#3	Alarm contact #3	<input checked="" type="radio"/> Red <input type="radio"/> Green	GPIO ▾	None ▾
#4	Alarm contact #4	<input checked="" type="radio"/> Red <input type="radio"/> Green	GPIO ▾	None ▾
#5	Alarm contact #5	<input checked="" type="radio"/> Red <input type="radio"/> Green	GPIO ▾	None ▾
#6	Alarm contact #6	<input checked="" type="radio"/> Red <input type="radio"/> Green	GPIO ▾	None ▾
#7	Alarm contact #7	<input checked="" type="radio"/> Red <input type="radio"/> Green	GPIO ▾	None ▾
#8	Alarm contact #8	<input checked="" type="radio"/> Red <input type="radio"/> Green	GPIO ▾	None ▾
#9	Alarm contact #9	<input checked="" type="radio"/> Red <input type="radio"/> Green	GPIO ▾	None ▾
#10	Alarm contact #10	<input checked="" type="radio"/> Red <input type="radio"/> Green	GPIO ▾	None ▾

Frequency Range: 1KHz - 600KHz ▾

	Digital Outputs	Inactive	Active	Pulse	PWM
#1	Output #1	Yellow/Left ▾ Inactive	Green/Right ▾ Active	No ▾ 0.5 seconds ▾	Disabled ▾ 0
#2	Output #2	Yellow/Left ▾ Inactive	Green/Right ▾ Active	No ▾ 0.5 seconds ▾	Disabled ▾ 0
#3	Output #3	Yellow/Left ▾ Inactive	Green/Right ▾ Active	No ▾ 0.5 seconds ▾	Disabled ▾ 0
#4	Output #4	Yellow/Left ▾ Inactive	Green/Right ▾ Active	No ▾ 0.5 seconds ▾	Disabled ▾ 0
#5	Output #5	Yellow/Left ▾ Inactive	Green/Right ▾ Active	No ▾ 0.5 seconds ▾	Disabled ▾ 0
#6	Output #6	Yellow/Left ▾ Inactive	Green/Right ▾ Active	No ▾ 0.5 seconds ▾	Disabled ▾ 0
#7	Output #7	Yellow/Left ▾ Inactive	Green/Right ▾ Active	No ▾ 0.5 seconds ▾	Disabled ▾ 0
#8	Output #8	Yellow/Left ▾ Inactive	Green/Right ▾ Active	No ▾ 0.5 seconds ▾	Disabled ▾ 0

Sensor Setup (continued – DAC and Scheduling)

	Analog Outputs	Setting (Volts)
#1	Analog Output #1	0
#2	Analog Output #2	0
#3	Analog Output #3	0
#4	Analog Output #4	0

	Other Inputs	Averaging	Config
#1	Temperature	None	TC74A5

Scheduled Outputs			
#1	Output #1 Disabled	Inactive 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	Output #1 Disabled	Inactive 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	Output #1 Disabled	Inactive 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	Output #1 Disabled	Inactive 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	Output #1 Disabled	Inactive 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	Output #1 Disabled	Inactive 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	Output #1 Disabled	Inactive 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	Output #1 Disabled	Inactive 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	Output #1 Disabled	Inactive 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	Output #1 Disabled	Inactive 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	Output #1 Disabled	Inactive 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	Output #1 Disabled	Inactive 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	Output #1 Disabled	Inactive 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	Output #1 Disabled	Inactive 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	Output #1 Disabled	Inactive 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	Output #1 Disabled	Inactive 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="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.
<input type="button" value="Submit Values"/> <input type="button" value="Cancel Changes"/>

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Sensor Setup Notes

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. If any of the name fields on the left are left blank, the channel will be hidden on the status screen.

A running average can be specified for any of the analog channels, including the AC voltage and Temperature monitors. The number of averages is selected from a dropdown list for each channel. This can be used to quiet any noise or false alarms due to transients.

Digital Outputs can be user-configured to match your circuit. "Active" refers to the output MOSFET being "ON" or conducting. You may configure each output to provide a positive or negative pulse with a duration between 0.5 second and 60 seconds. Pulse width value is chosen from a dropdown list. Button colors and orientation are also selectable. A user-name for Active and Inactive states can also be configured. PWM can be enabled for each digital output channel here, and duty cycle can be entered into the text box. With the fully-isolated jumper in place for outputs 7-10, and all other digital outputs, the PWM frequency must be set to 125 Hz, and duty cycle defines the active state (voltage low) of the FET output. When the isolation-jumper is set to the bypass position for channels 7-10, you can use the higher frequency options (see specs.) and the output logic is TTL referenced to G.

Analog and digital alarms are set up in the "Alarm Setup" screen. See the "Alarm Setup" section for more information.

Up to 16 "Scheduled Outputs" can be configured based on the built-in Real Time Clock. This allows the user to change Digital Outputs based on a schedule. You can configure them to change once, or set them to a given state between the specified start and stop times.

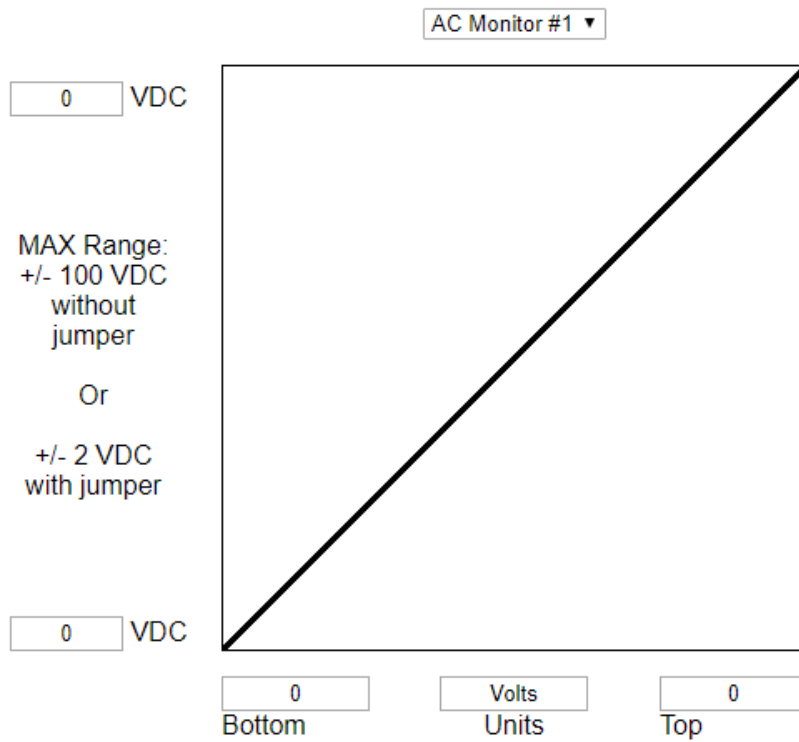
Logging can also be scheduled to start and stop at specified times and days of the week. If this is disabled, logging is off or continuous as specified on the Device Setup Page.

SENSOR CALIBRATION

SITEGRAPH - RMCU

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

Calibration



Jumpered: ▾

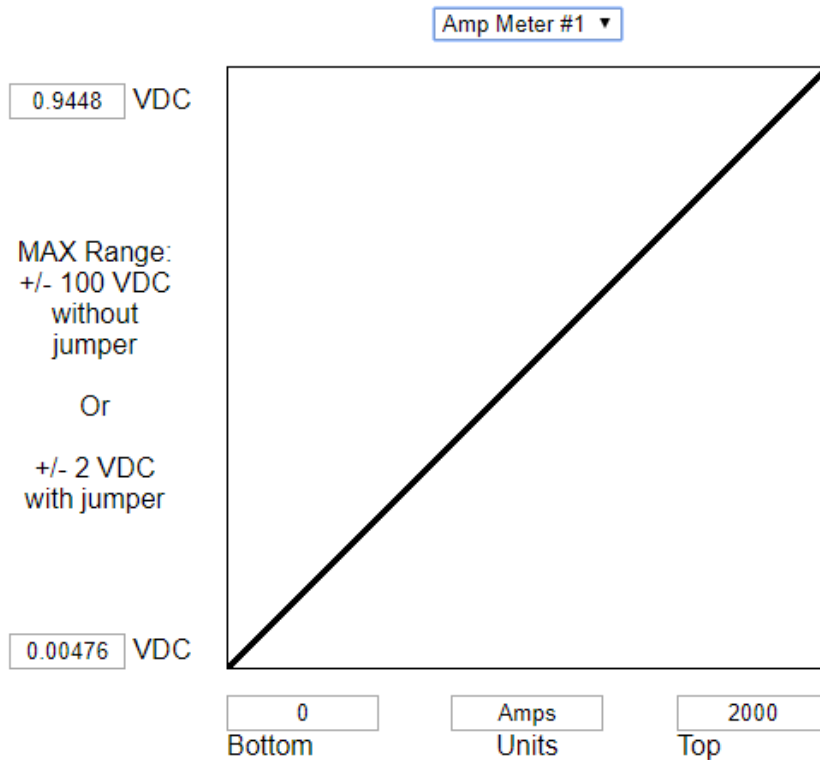
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When channels 1-4 are used for AC measurement (jumper set to AC), the “Jumpered” setting must be set to “AC”. The 2 v range setting does not apply. User units can be set to whatever you want.

SITEGRAPH - RMCU

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

Calibration



Jumpered: Yes ▾

Submit Values

Cancel Changes

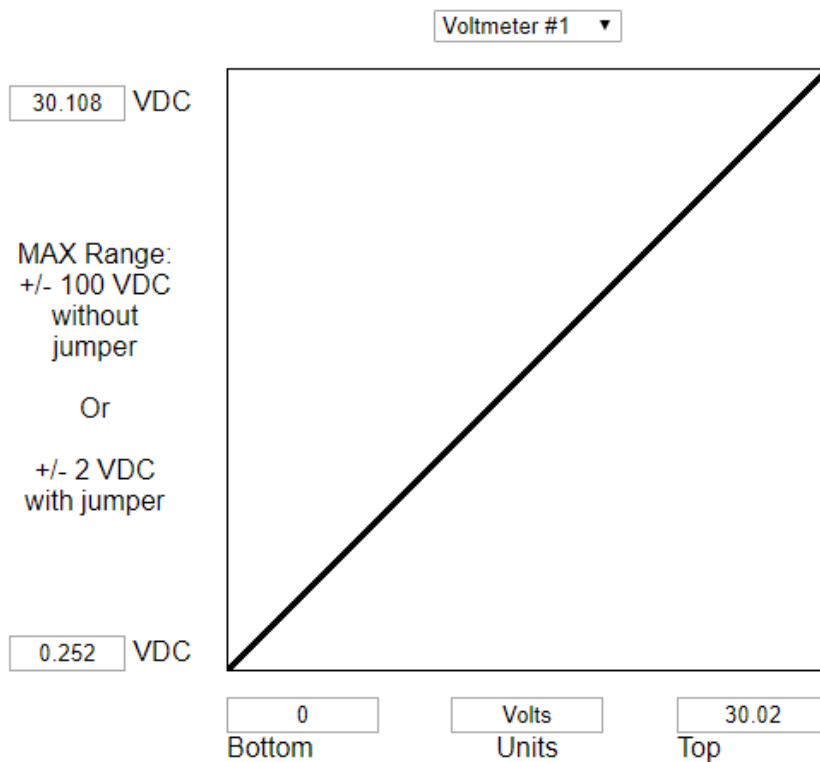
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For DC measurements (Ch 1-4 jumper in place for DC, and Ch5-8), the "Jumpered" setting is set to "No" for the +/- 100 VDC range, and set to "Yes" for the +/- 2 VDC range (Jumper in place for 2 V range on related channel hardware). The units name can be set to any units, and the calibration factors can be set to convert voltage into user units. See "Sensor Calibration Notes". Here, Ch3 is configured for the 2 VDC range and calibrations are in place to convert readings to 0 to 100 Amps for this channel of This SITEGRAPH board.

SITEGRAPH - RMCU

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

Calibration



Jumpered: No ▾

Submit Values

Cancel Changes

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This example shows the calibration for Voltmeter #1 (Ch4 of the standard configuration) configured for +/- 100 VDC ("Jumpered" = "No") with calibration factors entered to fine-tune the calibration.

Sensor Calibration Notes

The calibration page is not accessible via the page menus to protect measurement integrity from accidental changes. To access the calibration page you need to log in as the proper user (see User Setup Notes). Then you need to type the following URL into the browser <SITEGRAPH-ip-address>/calib.html

Sensor calibration is provided to convert the native voltage measurements of the SITEGRAPH into other units for linear transducers. For example, the current transducer provided with the SITEGRAPH will have 50mv across it when 100 Amps is flowing through it. The conversion factor is entered on this page.

Analog Channels 1-4 must be hardware-jumpered for AC and the "jumpered" setting set to "AC" for that channel.

Channels that only measure AC or DC voltage do not need a conversion factor, and the entries can be left at 0 since channels are configured and calibrated at the factory. When a physical jumper is placed on channel 1, it is changed from a +/-100 Volt max range to a +/-2V max range to gain resolution for smaller voltages. The "Jumpered" drop-down must be set to "Yes" for a channel with a jumper so that it is scaled properly. Since a current shunt is designed for a typical voltage drop of 50mv at full scale, Channel 1 is configured with a physical jumper, the "Jumpered" dropdown is set to "Yes", and calibration factors are entered. Since 0 v will be equal to 0 Amps, we don't need to change the lower left calibration factors. We change the vertical maximum to 0.05 VDC (50mv) and the horizontal maximum to 100. We then type "Amps" as the user units.

By defining 2 points on the linear graph, we can calibrate any linear transducer, within the voltage measurement range of the SITEGRAPH. This will allow you to use a broad range of existing transducers to measure many different things like pressure, temperature, force, etc. Even 4-20ma transducers can be used by measuring the voltage across a resistor placed in series with the transducer. These transducers require that both the lower-left and upper right calibration points be configured on the graph.

ANALOG AND DIGITAL WIRING

AC Line Voltage Measurement

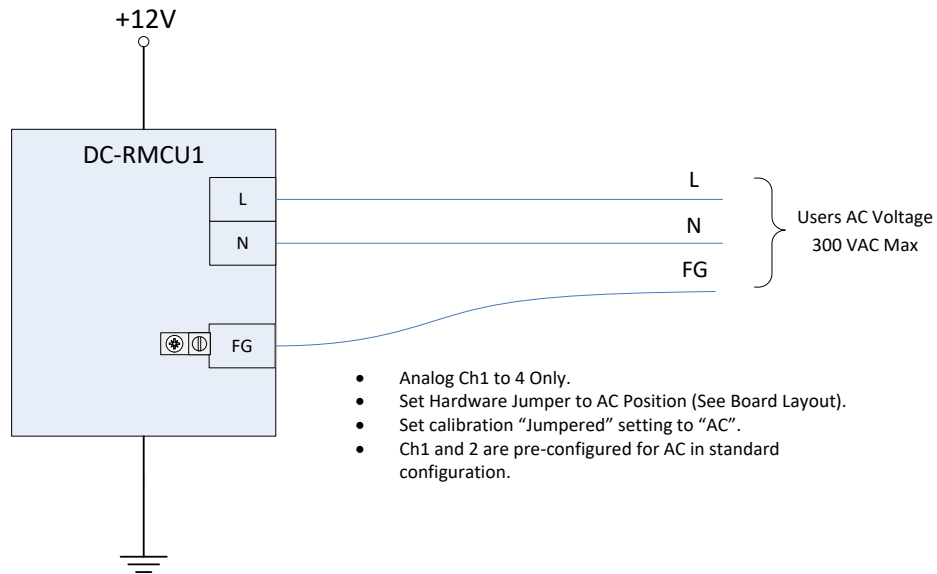


Figure 4

Analog Channels: DC Voltage Measurement

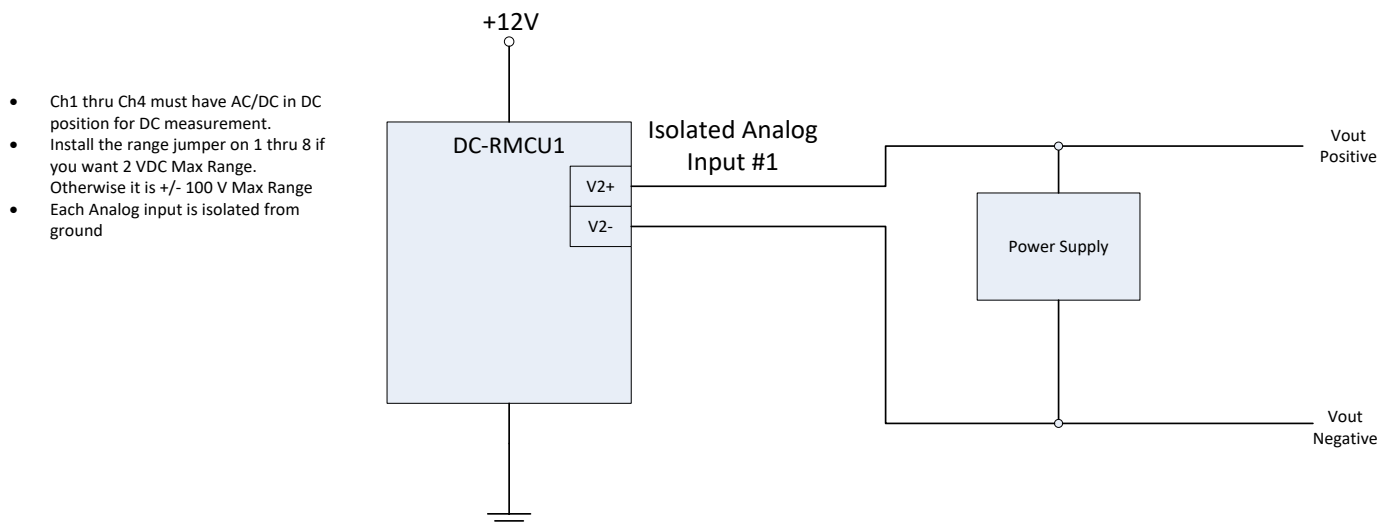
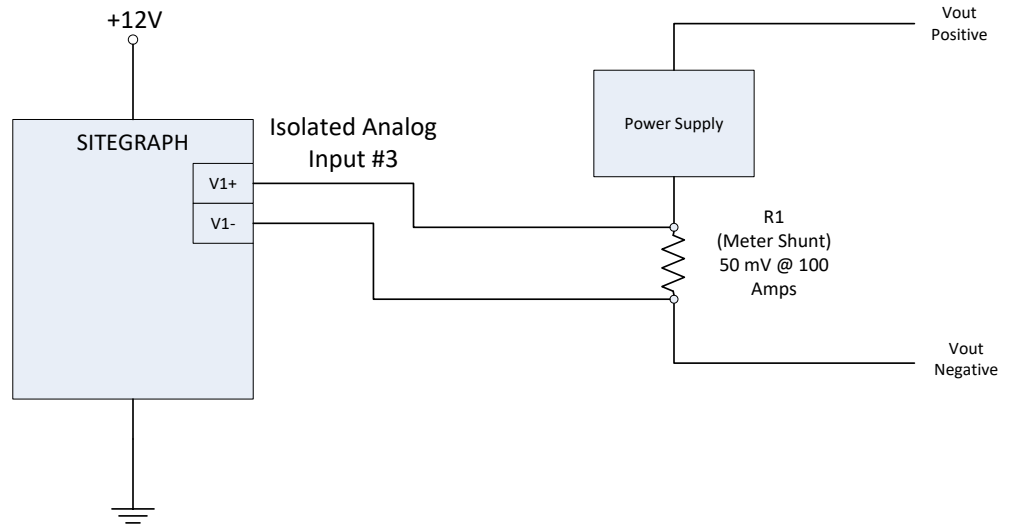


Figure 5

Analog Channels: DC Amperage Measurement

The SITEGRAPH comes pre-configured from the factory to measure amperage on channel 3. A jumper is installed on the board in the channel 1 circuit to configure it to measure +/- 2 V max instead of +/- 100 V max to measure the low voltage associated with the meter shunt. SITEGRAPH Channel 1 is calibrated to use the 100 Amp / 50mV shunt supplied with the SITEGRAPH.

- Ch1 thru Ch4 must have AC/DC in DC position for DC measurement.
- Internal hardware configuration jumper comes installed on channel 3 (2 VDC Max Range) to measure Amperage.
- The DC-RMCU1 is factory configured to use the meter shunt supplied with the DC-RMCU1.



To measure lower amperage ranges, please contact DuraComm technical support.

Figure 6

Temperature Measurement

Connect the TC74 Temperature sensor to the SITEGRAPH Temperature connections as shown.

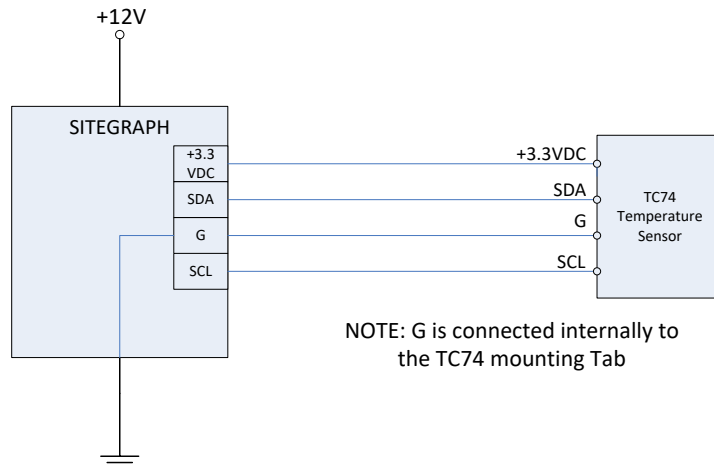


Figure 7

Sensor Setup – Digital Inputs (Alarms)

- NOTE: “G” is the DC-RMCU1 Board Ground
- Use Isolated supply if installing in a mixed ground system such as Negative 48 VDC.

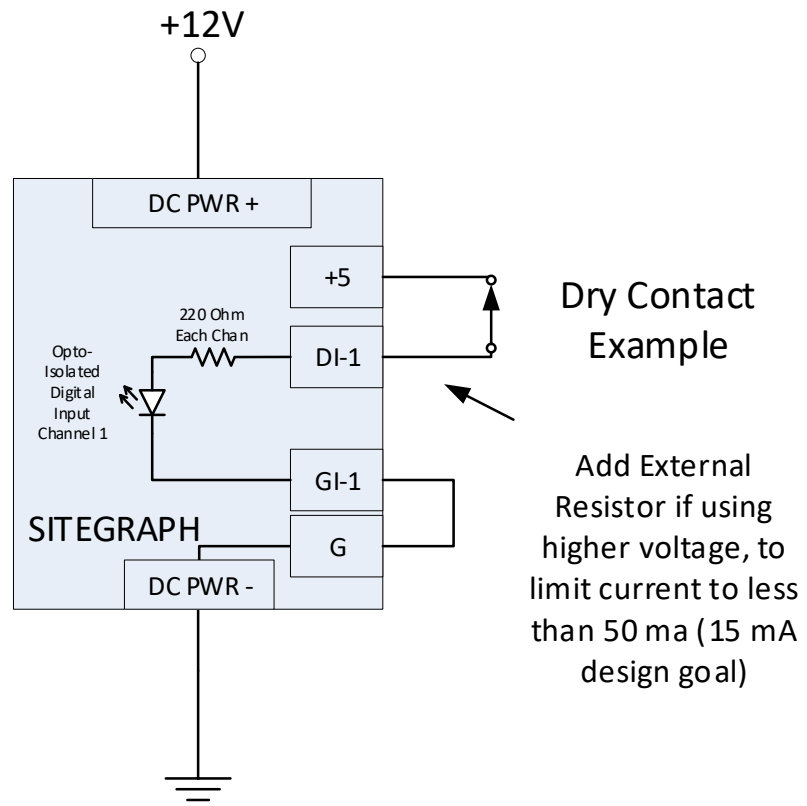


Figure 8

Sensor Setup – Digital Open-Drain Outputs

Digital outputs can be configured for the application. Here are a couple of examples. The color (green, red , or yellow) and left/right state of the control button can be set by the user, along with a custom label that makes sense to the user. “active” means that the MOSFET is conducting.

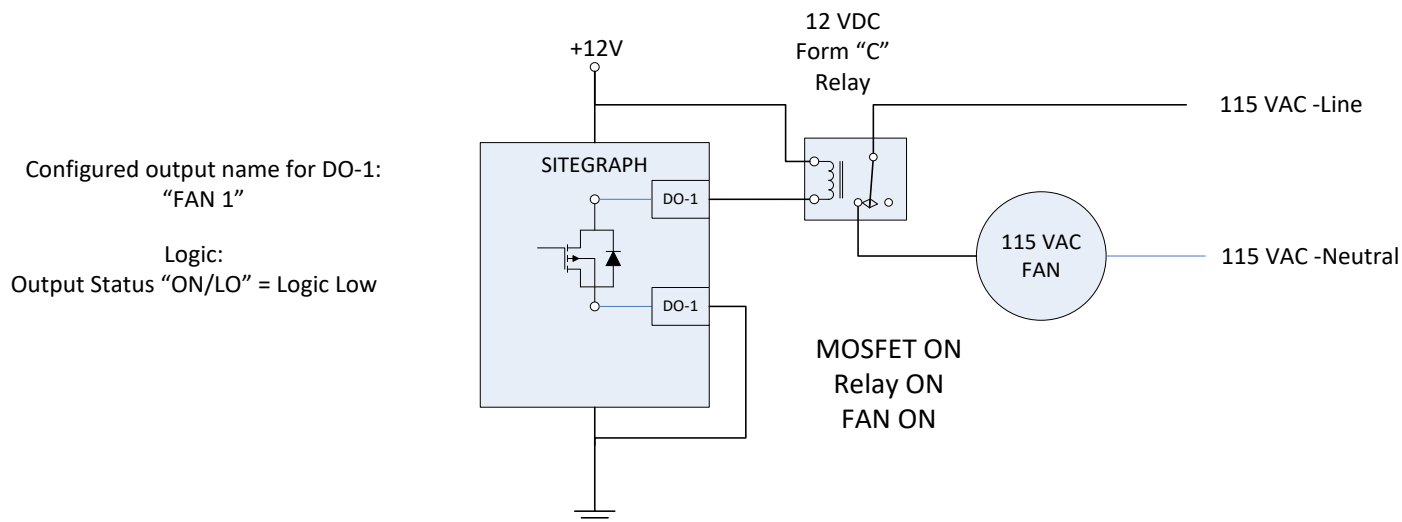


Figure 9: Normal Digital Output Configuration

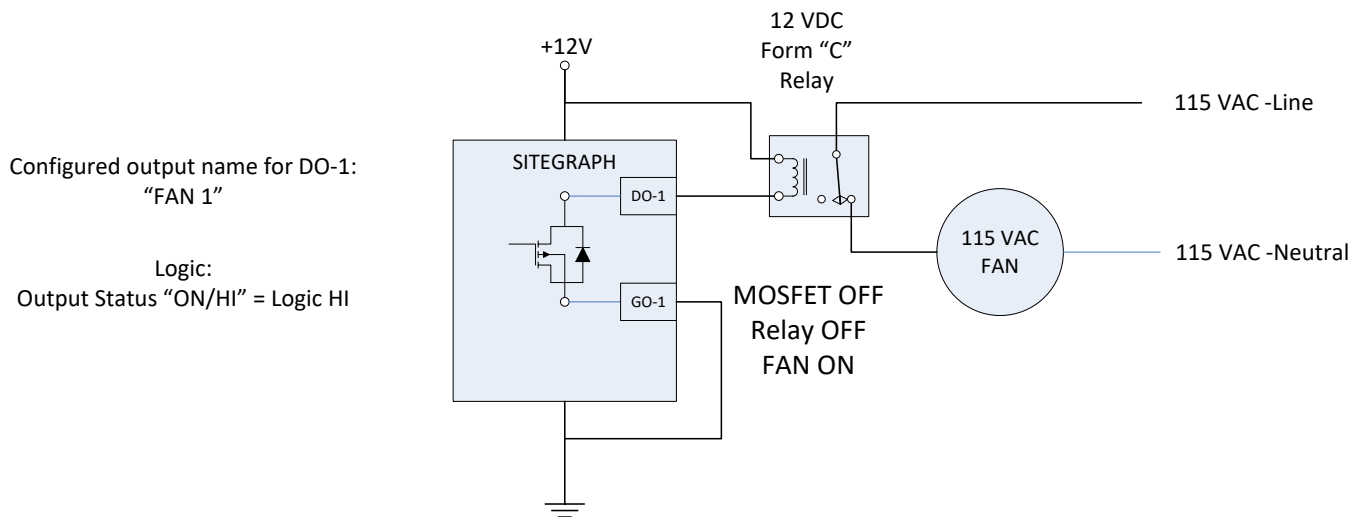
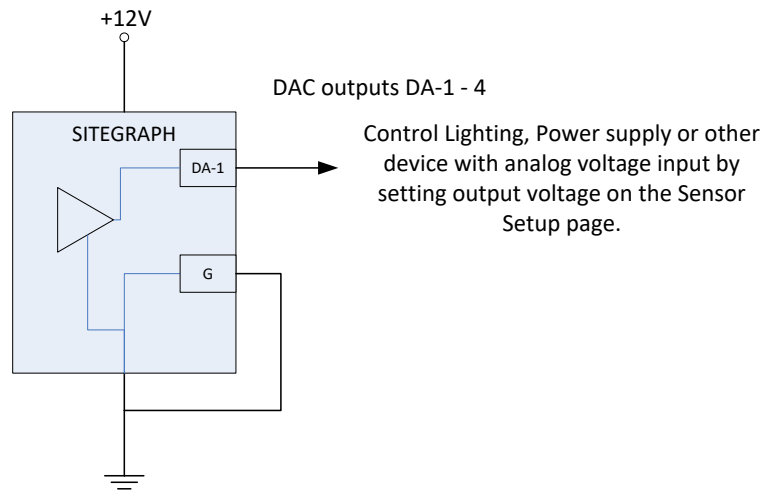


Figure 10: Reversed Logic Digital Output Configuration

Sensor Setup – Digital To Analog Outputs

Analog outputs are connected as follows:



ALARM SETUP – ANALOG CHANNELS

SITEGRAPH - RMCU

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

Alarm Setup

Analog		AC Monitor #1 ▾
Under alarm		
Threshold:	< 100	Volts
Allow auto Recovery:	Yes ▾	
Recovery:	107	Volts
Send e-mail:	No ▾	
Alarm contacts:	<input type="checkbox"/> Output #1 <input type="checkbox"/> Output #2 <input type="checkbox"/> Output #3 <input type="checkbox"/> Output #4 <input type="checkbox"/> Output #5 <input type="checkbox"/> Output #6 <input type="checkbox"/> Output #7 <input type="checkbox"/> Output #8	
Over alarm		
Threshold:	> 140	Volts
Allow auto Recovery:	Yes ▾	
Recovery:	130	Volts
Send e-mail:	No ▾	
Alarm contacts:	<input type="checkbox"/> Output #1 <input type="checkbox"/> Output #2 <input type="checkbox"/> Output #3 <input type="checkbox"/> Output #4 <input type="checkbox"/> Output #5 <input type="checkbox"/> Output #6 <input type="checkbox"/> Output #7 <input type="checkbox"/> Output #8	
Duration required:	Instant (0 seconds) ▾	
Display Range:	-10	to 150

ALARM SETUP – TEMPERATURE

External Temperature	
Under alarm	
Threshold:	< 40 F
Allow auto Recovery:	Yes ▼
Recovery:	45 F
Send e-mail:	No ▼
Alarm contacts:	<input type="checkbox"/> Output #1 <input type="checkbox"/> Output #2 <input type="checkbox"/> Output #3 <input type="checkbox"/> Output #4 <input type="checkbox"/> Output #5 <input type="checkbox"/> Output #6 <input type="checkbox"/> Output #7 <input type="checkbox"/> Output #8
Over alarm	
Threshold:	> 140 F
Allow auto Recovery:	Yes ▼
Recovery:	130 F
Send e-mail:	No ▼
Alarm contacts:	<input type="checkbox"/> Output #1 <input type="checkbox"/> Output #2 <input type="checkbox"/> Output #3 <input type="checkbox"/> Output #4 <input type="checkbox"/> Output #5 <input type="checkbox"/> Output #6 <input type="checkbox"/> Output #7 <input type="checkbox"/> Output #8
Duration required:	Instant (0 seconds) ▼
Display Range:	0 to 200

Internal Temperature	
Display Range:	0 to 200

Internal Humidity	
Display Range:	0 to 100

ALARM SETUP – DIGITAL CHANNELS

Digital Inputs		Alarm contact #1 ▾
Alarm Condition:	Never Alarm ▾	
Email:	No ▾	
Duration required:	Instant (0 seconds) ▾	

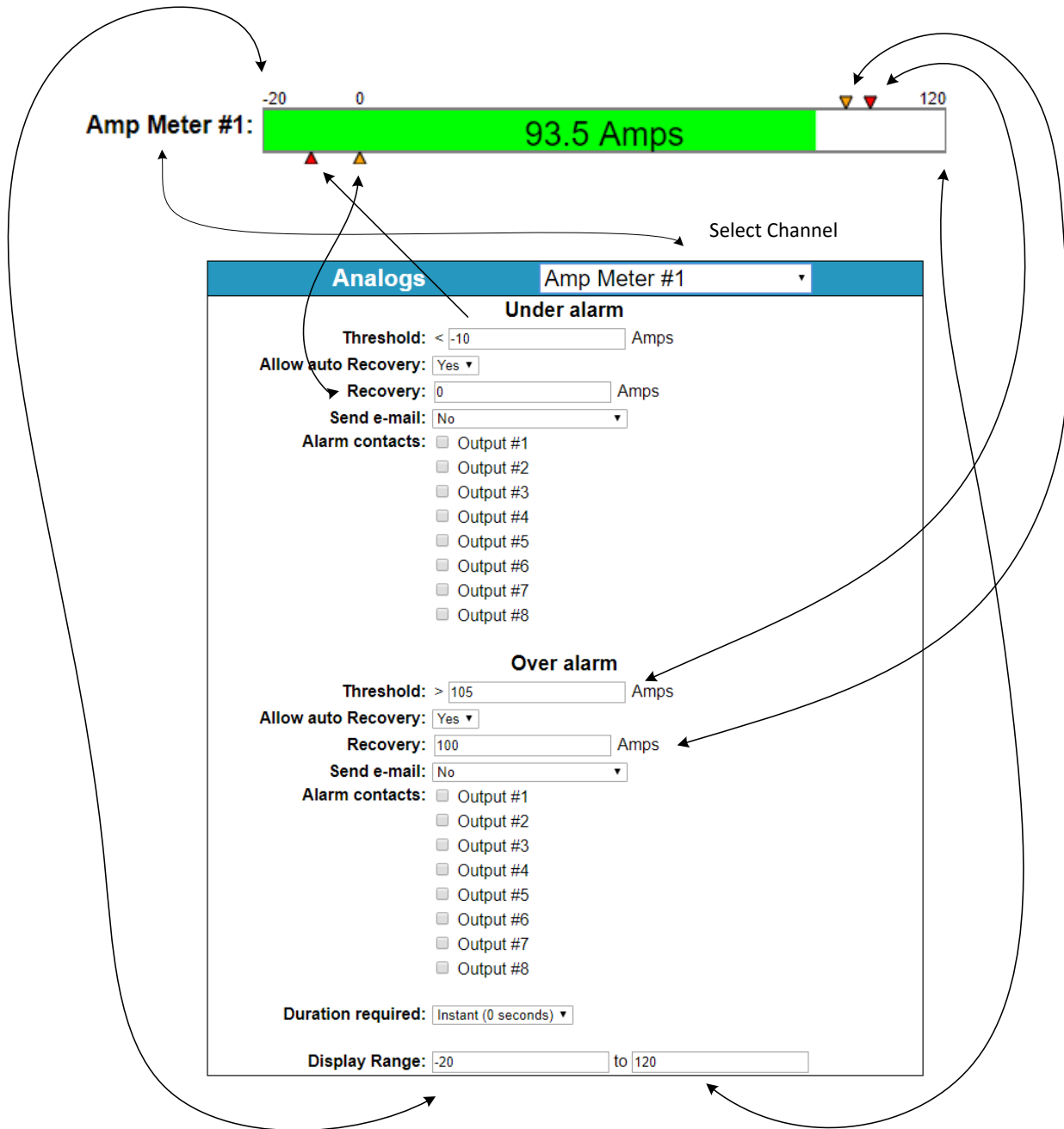
Digital Outputs		
Output #1:	Never alarm ▾	Never e-mail ▾
	On alarm, go to Active ▾	
Output #2:	Never alarm ▾	Never e-mail ▾
	On alarm, go to Active ▾	
Output #3:	Never alarm ▾	Never e-mail ▾
	On alarm, go to Active ▾	
Output #4:	Never alarm ▾	Never e-mail ▾
	On alarm, go to Active ▾	
Output #5:	Never alarm ▾	Never e-mail ▾
	On alarm, go to Active ▾	
Output #6:	Never alarm ▾	Never e-mail ▾
	On alarm, go to Active ▾	
Output #7:	Never alarm ▾	Never e-mail ▾
	On alarm, go to Active ▾	
Output #8:	Never alarm ▾	Never e-mail ▾
	On alarm, go to Active ▾	

Global settings	
Log all alarms:	No ▾

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ALARM SETUP EXAMPLE FOR BAR GRAPH

The following is an example to set up alarms and bar graph limits for the status page.



Alarm Setup Notes

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 dropdown box next to the "Analog" label. For example, we are looking at the settings for the "Amp Meter #1" channel in the screen above. "Ammeter #1" is the name given to this channel in the Sensor Setup screen. AC Monitor and Temperature channels have their own section.

Note: The maximum temperature of the temperature sensor is +300 F. The low range of the sensor is about +36 F. The operating temperature range of the SITEGRAPH is -22 F to + 140 F

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, and you can assign the alarm to one of four alarm contacts.

Factory Default Alarm Settings

MEASUREMENT	UNITS	OVER ALARM	OVER ALARM RECOVER	UNDER ALARM	UNDER ALARM RECOVER
AC Monitor #1	Volts	140	135	100	107
AC Monitor #2	Volts	140	135	100	107
Ammeter #1	Amps	105	100	-10	-1
Voltmeter #1	Volts	100	95	-10	-1
Voltmeter #2	Volts	100	95	-10	-1
Voltmeter #3	Volts	100	95	-10	-1
Voltmeter #4	Volts	100	95	-10	-1
Voltmeter #5	Volts	100	95	-10	-1
Temperature (ext)	Fahrenheit	140	130	40	45

Digital alarms for inputs and outputs as well as the email notifications for them are also configured in this screen. Digital input alarm conditions can be set to “Never alarm”, “Alarm on close”, “Alarm on open”, or “Alarm on open or close”.

Digital output alarm conditions can be set to “Never Alarm”, “Alarm on <user name for inactive state>”, “Alarm on <user name for active state>”, “Alarm on (both states)”.

E-mail notifications can be set for each analog alarm threshold, the recovery, as well as digital alarm conditions.

Global Settings” “Log all alarms” is the same as “Log Alarms” on the “device Setup” screen.

You can also set a duration for the analog and digital input alarms. Selecting a duration from the dropdown list means that the alarm condition must be sustained for this length of time before the alarm is triggered. This applies to alarms shown on the status screen, email notifications, and traps when the alarm is set, and when it is cleared.

USER SETUP

SITEGRAPH - RMCU

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.

User Setup – Continued

Miscellaneous

Calibration access:

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.

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User Setup Notes

Only Admin level users have access to this page. Up to 8 Users can be configured.

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

Admin users of the SITEGRAPH stand-alone DC-RMCU1 have access to a calibration page. When the SITECENTRI board is used in a specific DuraComm product, calibration is pre-set at the factory, and the calibration page is not available. This page allows the user to calibrate a relationship between voltage measured and user units, such as Amperage. See the calibration page for more detail. The Admin user can also allow the Control user to perform this function by selecting "Control User" in the Calibration Access Dropdown list, and clicking Submit Values.

SNMPV3 Security settings for each user are also on this page. To enable SNMPV3, see the Device Setup page.

NOTE: To hard reset your device back to factory network settings, press the red button on the SITEGRAPH PCB and hold it for more than 20 seconds. You will need to re-connect to the SITEGRAPH through your web browser by entering the factory supplied IP address and HTTP port (see Network Setup). Using the factory reset here or using the red button to reset will change the network settings back to the factory reset/default values shown in this manual on the network configuration page, even if your unit was custom set at the factory to a user IP address. If your unit was set to a custom IP address, it will be labeled underneath the product label on the side of the SITEGRAPH.

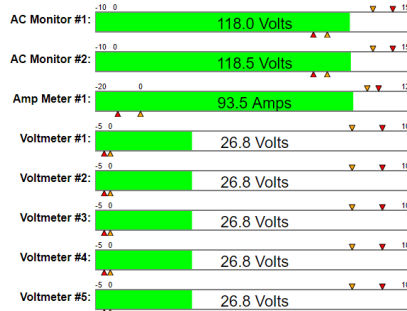
REMOTE MONITORING AND CONTROL STATUS PAGE



SITEGRAPH - RMCU

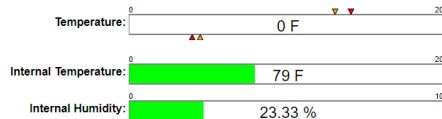
Status	Device Setup	Sensor Setup	Alarm Setup
User Setup	Network Setup	E-Mail Setup	Logout (factory)

SITEGRAPH Status

[See charts](#)

- Alarm contact #1: CLOSED
- Alarm contact #2: OPEN
- Alarm contact #3: OPEN
- Alarm contact #4: OPEN
- Alarm contact #5: OPEN
- Alarm contact #6: OPEN
- Alarm contact #7: OPEN
- Alarm contact #8: OPEN
- Alarm contact #9: OPEN
- Alarm contact #10: OPEN
- Output #1: Active
- Output #2: Active
- Output #3: Active
- Output #4: Active
- Output #5: Inactive
- Output #6: Inactive
- Output #7: Inactive
- Output #8: Inactive

Analog Output #1: 0.050 V
Analog Output #2: 0.000 V
Analog Output #3: 0.000 V
Analog Output #4: 0.000 V



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

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Status screen

This screen shows the status of all analog and digital inputs, as well as analog and digital outputs. A user can also download the Log file from this page. This example shows the factory settings. The external temperature will show "0" if no TC74 temperature sensor is connected. Internal temperature and humidity are for display only (no alarms)

Status screen – Examples

The following example shows a variety of ways that the status screen bar graphs can be configured for the analog channels. Alarm level symbols will not show if they are equal to, or outside of the graph limits. The bar always grows from the left. To show some alarm status color, always set the lower graph limit below zero, or below the most negative reading.

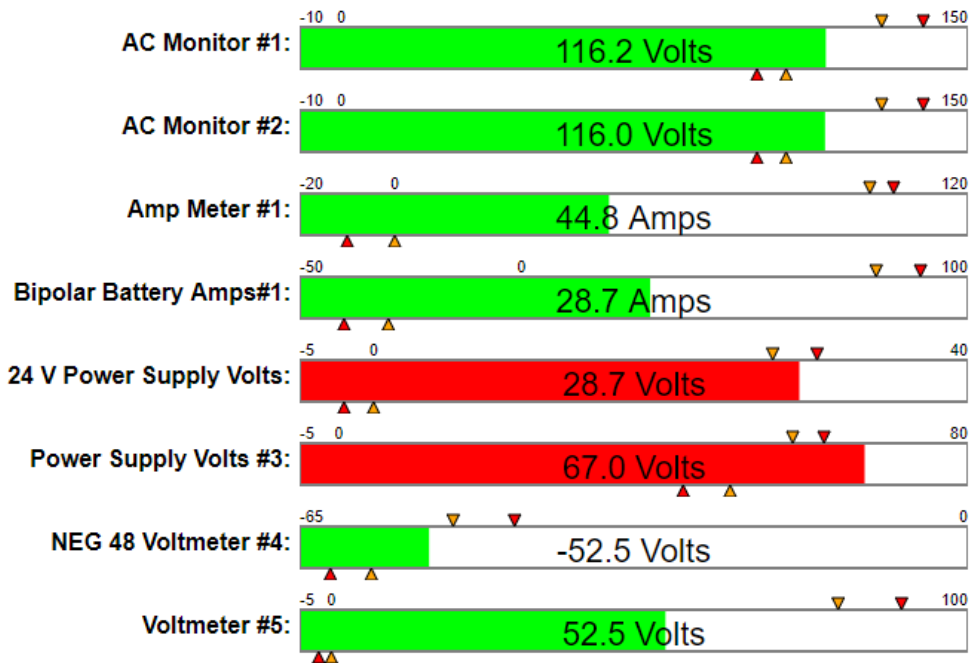
Bipolar Battery Amps#1 shows a channel set up to monitor bipolar (bidirectional) current for a battery that is either charging or discharging.

“Power Supply Volts #3” shows a condition where the voltage has risen to a level above the upper limit.

“24 V Power Supply Volts” shows a condition where the voltage rose above the upper limit, triggering the alarm, but hasn’t fallen below the upper limit recovery voltage yet, so it is still in alarm status, and still red.

“NEG 48 Voltmeter #4” shows a negative 48 voltmeter that is configured for 0 volts on the right, and -65 volts on the left. Alarm limits are configured as negative values with the lower limit being more negative than the upper limit to work properly.

“Voltmeter #5” shows the exact same voltage but is configured show the voltage as positive. Wires are reversed on the input so that it will read a positive voltage. This is possible because the analog channels are fully isolated.



Status screen – Manual Alarm Recovery



When a bar graph or chart turns orange, it’s because the channel is configured on the alarms page to not allow auto recovery. If the measurement goes out of normal range, it will turn red. When it recovers to within the normal range (inside of the upper and lower limits), it will turn yellow. To clear this alarm you must click the graph. If you have a digital output connected to the alarm, it will not recover until you manually click the graph.

CHARTS SCREEN – DEFAULT (ARCHIVE DATA)



SITEGRAPH - RMCU

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

SITEGRAPH Status



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CHARTS SCREEN – (LIVE DATA)




SITEGRAPH - RMCU

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

SITEGRAPH Status

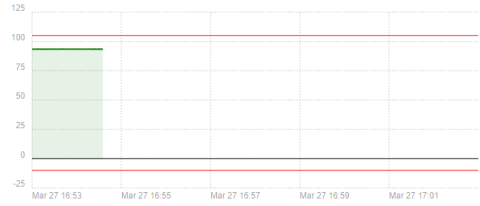
AC Monitor #1: 116.7 Volts ● [Goto Archive](#)  




AC Monitor #2: 117.1 Volts ● [Goto Live](#)  



Amp Meter #1: 93.4 Amps ● [Goto Archive](#)  




Voltmeter #1: 26.8 Volts ● [Goto Archive](#)  



Voltmeter #2: 26.8 Volts ● [Goto Archive](#)  



Voltmeter #3: 26.8 Volts ● [Goto Live](#)  



Voltmeter #4: 26.8 Volts ● [Goto Live](#)  



Voltmeter #5: 26.8 Volts ● [Goto Live](#)  



Temperature: 77 F ●
Internal Temperature: 76.6 F
Internal Humidity: 26.07 %


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Status screen Notes

The default screen after clicking the “See Charts” button shows the archived data for each channel. It may take 30 seconds or so to load the data and display the channels. After initial loading the samples will be displayed as taken.

NOTE: If you just started the SITEGRAPH and no data has been sampled, you will have to wait for the archive sample period to pass before seeing the first data point. Archive data always grows from the right. The internal Real Time Clock must be set properly before archive data will appear. Archive data can be downloaded as a CSV file (each channel) by right-clicking the disc symbol. Left click will show the data on screen.

Clicking the “Goto Live” button for each channel will show data samples at the fastest rate, approximately 0.5 second, and the live data always grows from the left, with the chart data shifting left when the chart is filled.

Each channel can be expanded or contracted vertically for better viewing by clicking the  symbol.

MOBILE STATUS SCREEN

The following examples show a configured SITEGRAPH that is reading various voltages and currents. Any unused channels (configured with a blank name) are hidden in the desktop browser view, and grayed out in the mobile browser view.

SITEGRAPH - RMCU		
External Temperature: 77 F Internal Temperature: 76.5 F Internal Humidity: 25.9 %		
AC Monitor #1 116.7 Volts	AC Monitor #2 117.1 Volts	Amp Meter #1 93.4 Amps
Voltmeter #1 26.8 Volts	Voltmeter #2 26.8 Volts	Voltmeter #3 26.8 Volts
Voltmeter #4 26.8 Volts	Voltmeter #5 26.8 Volts	
Alarm contact #1 CLOSED		Alarm contact #2 OPEN
Alarm contact #3 OPEN		Alarm contact #4 OPEN
Alarm contact #5 OPEN		Alarm contact #6 OPEN
Alarm contact #7 OPEN		Alarm contact #8 OPEN
Alarm contact #9 OPEN		Alarm contact #10 OPEN
Output #1 Active		Output #2 Active
Output #3 Active		Output #4 Active
Output #5 Inactive		Output #6 Inactive
Output #7 Inactive		Output #8 Inactive
Analog Output #1 0.050		Analog Output #2 0.000
Analog Output #3 0.000		Analog Output #4 0.000

SITEGRAPH MAINTENANCE

Battery

The battery on the SITEGRAPH 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.

If logging is enabled, download and save the data periodically, then clear the log files. If you just let it run, you will end up with Gigabytes of data broken up into 5 MB files that must be downloaded individually and this will take a very long time.

Firmware Updates

If new firmware is issued for your SITEGRAPH, it can download and install the firmware from a website. This is not configured until the need arises to upgrade. You must contact DuraComm for a URL to perform the upgrade. The upgrade may also be performed by local TFTP if necessary.

When you receive a link for the upgrade files, you must type this into your browser.

<SITEGRAPH IP ADDRESS>/webupd.htm

This will bring up the update page where you will enter the URL, Check for update files, download them, then install the upgrade and reboot.

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)

<u>Current Level in Amperes</u>	<u>Wire Size</u>
<7 AMPERES	20 AWG Up to 5 feet 18 AWG Up to 10 feet
14 AMPERES	18 AWG Up to 5 feet 16 AWG Up to 10 feet
20 AMPERES	16 AWG Up to 5 feet 14 AWG Up to 10 feet
30 AMPERES	14 AWG Up to 5 feet 12 AWG Up to 10 feet
40 AMPERES	12 AWG Up to 5 feet 10 AWG Up to 10 feet
50 AMPERES	10 AWG Up to 5 feet 8 AWG Up to 10 feet
70 AMPERES	8 AWG Up to 5 feet 6 AWG Up to 10 feet
100 AMPERES	6 AWG Up to 5 feet 4 AWG Up to 10 feet

LIMITED 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 manufacture, 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 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 which 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.

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