CV2

Instruction Sheet and Manual

BlueBOLT

PANAMAX®

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INTRODUCTION

Thank you for purchasing a Panamax BlueBOLT-CV2 Interface Card which plugs in to select Panamax/Furman products and provides access to BlueBOLT™ cloud based remote power management technology.

PRODUCT DESCRIPTION

Each BlueBOLT-CV2 card includes a unique MAC address and identification number allowing you to create a BlueBOLT account or add a compatible unit to an existing account. The BlueBOLT-CV2 includes an embedded web page for local control and configuration, embedded scheduled events and pings, increased memory for future expansion, and enhanced data encryption AES128.

PANAMAX/FURMAN LIMITED PRODUCT WARRANTY

Panamax Inc. warrants to the purchaser of this product for a period of three (3) years from the date of purchase, that the unit shall be free of defects in design, material or workmanship, and Panamax Inc. will repair or replace any defective unit.
Full warranty information is available online at www.Panamax.com or www.FurmanPower.com.

FCC CLASS B DIGITAL DEVICE INFORMATION

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

INSTALLATION

SET UP AS NEW DEVICE

1. ATTENTION: PLEASE RETAIN MAC ADDRESS IDENTIFICATION NUMBER AND CHALLENGE KEY, WHICH APPEARS ON THE PROTECTIVE PACKAGING. This is unique to every BlueBOLT-CV2 card and will be required for registration.
2. Noting the 2 guiding channels within the card slot, gently slide the BlueBOLT-CV2 card into the card slot, making sure to tighten the knurled thumbscrews for a snug and secure fit.
3. Connect an Ethernet cable (not provided) between the BlueBOLT-CV2 card and an Internet router or modem with an established Internet connection.

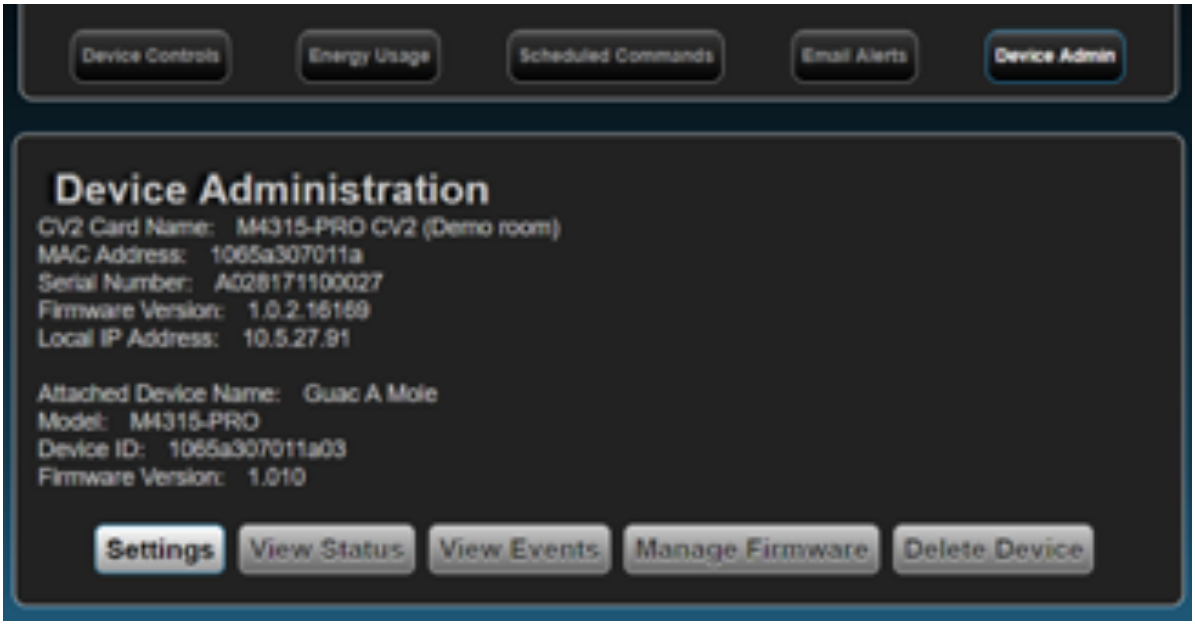
ONLINE REGISTRATION

Your BlueBOLT™ enabled Power Management Component is completely plug-and-play and does not require any software installation. The BlueBOLT™ control interface is operated through your web browser.

1. Using any Internet connected computer, go to www.mybluebolt.com using your standard Internet browser.
2. Follow the on screen instructions to create an account and/or take control of your BlueBOLT™ enabled product. Note: you will need the BlueBOLT-CV2's unique MAC address and challenge key (provided on the card's protective packaging as well as on the label of the card itself) in order to register the unit online.
3. If BlueBOLT™ cannot detect your device within 20 seconds of inputting your MAC address and challenge key, please follow the on-screen troubleshooting guide. Also confirm the Power Management Component is properly connected to the Internet.
    - A. Is your Power Management Component receiving power? Check the power cable and confirm the unit is on.
    - B. Is your BlueBOLT-CV2 card installed properly? The "Link" light should be illuminated (solid green) and the "Activity" light should be blinking intermittently (green).
    - C. Is your Internet connection functioning? Can you access a general web page?
    - D. Is your BlueBOLT-CV2 card connected to your internet router or modem? Check the Ethernet cable and confirm that the unit is connected to an active Internet connection, and make sure those connected devices are receiving power.
    - E. If you have answered "Yes" to all of these questions and are still unable to connect your Power Management component, contact Panamax/Furman customer service at 1-800-472-5555.

HOW TO DISCOVER THE CV2 IP ADDRESS

The BlueBOLT-CV2 IP address is located on the device Admin page



LOCAL AREA NETWORK OPERATION

CONVENTIONS

Bold italic font indicates variable text

XML attributes can be enclosed in double-quotes or single-quotes. There is no difference between the two.

DEFINITIONS

Device – The end-user product that the BLUEBOLT-CV2 card is installed into.

CV2 – Abbreviated nomenclature for BLUEBOLT-CV2

TELNET COMMAND SET/ PROTOCOL SPECIFICATIONS

The BlueBOLT-CV2 is compatible with Telnet commands. These commands are published in manuals of the specific devices. Follow the links below for the device you would like to control via Telnet.

F1500-UPS

http://resources.corebrands.com/products/F1500-UPS/pdf_F1500-UPS_manual.pdf

MB1500

http://resources.corebrands.com/products/MB1500/pdf_MB1500_manual.pdf

M4315-PRO

http://resources.corebrands.com/products/M4315-PRO/pdf_M4315-PRO_manual.pdf

M4320-PRO

http://resources.corebrands.com/products/M4320-PRO/pdf_M4320-PRO_manual.pdf

BLUEBOLT-CV2 COMMANDS

Communication with the BLUEBOLT-CV2 card (CV2) is made via UTP datagram packets on port 57010. Messages to the CV2 are structured in XML. Responses are also structured in XML. XML messages are wrapped in the header:

<?xml version="1.0" ?><device class="cv2" id="1065a3**xxxxxx**"> **MESSAGE** </device>

Where:

xxxxxx is the last six digits of the assigned MAC address.

MESSAGE is the content of the message

For brevity, the XML wrapper will not be included in the description of individual messages.

The CV2 card and host computer must be on the same physical network.

COMMAND ACKNOWLEDGEMENT

Not all commands to the CV2 result in a returned message. If an acknowledgement message is desired, the element xid="**ack_message**" can be added to the <command> tag. For example, the Switch Outlet command <outlet> does not normally return a response but can be forced to with the xid element.

Command message:

<command xid="switchoutlet"><outlet id="1">0</outlet></command>

Response message:

<ack xid="switchoutlet"/>

CV2 DEVICE INFO (QUERY)

Query CV2 information including serial number, firmware version and IP address.

SEND	<command><sendinfo/></command>	
RECEIVE	<info time="**time**">	Response time stamp, provided in UNIX time
	<sernum>**SN**</sernum>	BlueBOLT-CV2 serial number
	<fwver>**FW**</fwver>	BlueBOLT-CV2 firmware version
	<bootcodever>**BC**</bootcodever>	BlueBOLT-CV2 boot code version
	<ipaddr>**IP**</ipaddr>	IP address, expressed as a 32-bit (base-10) decimal value
	</info>	

CV2 DEVICE STATUS (QUERY)

Query CV2 connected device status.

SEND	<command><sendstatus/></command>	
RECEIVE	<status time="**time**">	Response time stamp, provided in UNIX time
	<ntwkinvhash>**HASH**</ntkwkinvhash>	Unique configuration code for the connected device. This will change if the BlueBOLT-CV2 card gets installed into a to a different device.
	<linkstate>**LINK**</linkstate>	0 = No communication with connected device 1 = Established communication with connected device
	<discostate>**DISCOVER**</discostate>	0 = Connected device has been discovered 1 = Discovering connected device
	<tfilestate…./>	NSC use only
	</status>	

CV2 TARGET DEVICE ID (QUERY)

Query to identify the connected device.

SEND	<command><sendfamily/></command>	
RECEIVE	<family>	
	<kids class="**PRODUCT**">	km4315: Panamax M4315-PRO km4320: Panamax M4320-PRO kmb1500: Panamax MB1500 kf1500: Furman F1500-UPS kf1500e: Furman F1500-UPS E (blank): No device detected
	<k>**ID**</k> </kids>	ID for the connected device is its MAC address concatenated with a two-digit number. This number will change if the CV2 is moved to another device.
	</family>	

CV2 REBOOT (COMMAND)

Command to reboot the CV2 hardware. Does not reboot the conected device.

SEND	<command><reboot/></command>	
RECEIVE	None	No response. BLUEBOLT-CV2 card reboots. Does not reboot the connected device.

M4315-PRO / M4320-PRO COMMANDS

Messages to and from the M4315/20-PRO device are similarly structured in XML. The XML messages are wrapped in the header:

<?xml version="1.0" ?><device class="km4315" id="**device_id">MESSAGE**</device>

The device class and ID are discovered by issuing the <sendfamily> command to the CV2. See CV2 Target Device ID above.

DEVICE	M4315-PRO	M4320-PRO
DEVICE CLASS	km4315	km4320

Note: The device_id will change if the CV2 card is moved to another BlueBOLT compatible product.

For brevity, the XML wrapper will not be included in the description of individual messages.

GET DEVICE STATUS (QUERY)

Query the status information from the connected M4315-PRO / M4320-PRO.

SEND	<command><sendstatus/></command>	
RECEIVE	<status time="**time**">	Response time stamp, provided in UNIX time
	<voltage>**VOLTS**</voltage >	Input line voltage, Vac
	<amperage >**AMPS**</amperage>	Input current, I ac
	<wattage>**WATTS**</wattage>	Total power consumption, W
	<pwrva>**VA**</pwrva>	Apparent power, VA
	<avmfault>**AVM**</avmfault>	Over / Under voltage fault status 0 = No OV / UV fault 1 = OV / UV fault
	<wiringfault>**WF**</wiringfault>	Outlet wiring fault status 0 = No wiring fault 1 = Wiring Fault
	<bkrfault>**BKR**</bkrfault>	Circuit breaker status 0 = Normal 1 = Breaker tripped
	<lastseqstate>**SEQ**</lastseqstate>	Last sequence state 0 = turn OFF sequence 1 = turn ON sequence
	<trigger>**TRIG**</trigger>	DC trigger status 0 = trigger inactive 1 = trigger active
	<temperature>**TEMP**</temperature>	Internal temperature, degrees Celsius
	<tmpfault>…</tmpfault>	NSC use only
	<flashfail>…</flashfail>	NSC use only
	<flashwrite>…</flashwrite>	NSC use only
	<outlet id="**outlet**">**OSTATE**</outlet>	**outlet** = outlet bank number, 1 to 8 **OSTATE** = 0: Outlet OFF **OSTATE** = 1: Outlet ON
	</status>	

GET DEVICE INFORMATION (QUERY)

Query the firmware version of the connected M4315-PRO / M4320-PRO.

SEND	<command><sendinfo/></command>	
RECEIVE	<info time="**time**">	Response time stamp, provided in UNIX time
	<fwver>**FW**</fwver>	M4315/20-PRO firmware version
	</info>	

GET DEVICE SETTINGS (QUERY)

Query the outlet, button and trigger settings from the connected M4315-PRO / M4320-PRO.

SEND	<command><sendsettings/></command>	
RECEIVE	<settings time='**time**'>	Response time stamp, provided in UNIX time
	<profile >**PROFILE**</profile>	Active outlet / trigger / delay profile 1 = Profile 1 (factory default) 2 = Profile 2 3 = Profile 3 4 = Profile 4
	<dlys> <dly id="**outlet**"' sf="**off**"' so="**on**"/> <cy id="**outlet**">**CYCLE**</cy> </dlys>	Outlet bank delay settings **outlet** = outlet number **on** = sequence OFF delay **off** = sequence ON delay **CYCLE** = power cycle delay
	<grps> <dcin>**OUTLETS**</dcin> <butt id="**button**">**OUTLETS**</butt> </grps>	DC Trigger & Button Input Groups **OUTLETS** = affected outlets bitmap, expressed as a hexadecimal value. LSB (bit 0) represents outlet 1, bit 7 represents outlet 8 **button** = 1: Power cycle outlet with button 1 **button** = 2: Power cycle outlet with button 2 **button** = 3: Force outlet on/off with Button 1 AND Button 2

Example 1: <dlys><dly id="**1**" sf="**10**" so="**20**"/><cy id="**1**">**60**</cy></dlys>

Indicates that **outlet 1** has a turn off delay of **10** seconds, turn on delay of **20** seconds and cycle delay of **60** seconds.

Example 2: <grps><dcin>f0</dcin></grps>

Affected outlets are encoded in an 8-bit bitmap expressed in hexadecimal. The hex value f0 converted to binary is 1111 0000 where each bit represents an outlet affected by the DC trigger input.

Bit 7 **Outlet 8**	Bit 6 **Outlet 7**	Bit 5 **Outlet 6**	Bit 4 **Outlet 5**	Bit 3 Outlet 4	Bit 2 Outlet 3	Bit 1 Outlet 2	Bit 0 Outlet 1
1	**1**	**1**	1	0	0	0	0

Indicates that DC trigger is assigned to outlets 8, 7, 6 and 5.

Example 3: <grps><butt id="1">8a</butt></grps>

The hex value 8a converted to binary is 1000 1010 where each bit represents an outlet affected by Button 1.

Bit 7 **Outlet 8**	Bit 6 Outlet 7	Bit 5 Outlet 6	Bit 4 Outlet 5	Bit 3 **Outlet 4**	Bit 2 Outlet 3	Bit 1 **Outlet 2**	Bit 0 Outlet 1
1	0	0	0	**1**	0	**1**	0

Indicates that **Button 1** is assigned to outlets 8, 4 and 2.

SWITCH OUTLET (COMMAND)

Command to switch an individual outlet ON or OFF.

SEND	<command> <outlet id="**outlet**">**OSTATE**</outlet> </command>	**outlet** = outlet number to switch **OSTATE** = 0: switch outlet OFF **OSTATE** = 1: switch outlet ON
RECEIVE	None	No response

Example: to switch **OFF** outlet 4

<command><outlet id="**4**">**0**</outlet></command>

SWITCH OUTLET GROUP (COMMAND)

Command to switch a group of outlets ON or OFF.

SEND	<command> <outlets grp="**outlets**">OSTATE</outlets> </command>	**outlets** = affected outlets bitmap, expressed in hex. LSB (bit 0) represents outlet 1, bit 7 represents outlet 8 **OSTATE** = 0: switch outlet OFF **OSTATE** = 1: switch outlet ON
RECEIVE	None	No response

Example: switch **ON** outlets 8, 4 and 2

<command><outlets grp="**8a">1**</outlets></command>

See outlet bitmap example, see outlet bitmap example in the above Get Device Settings description Get Device Settings.

CYCLE OUTLET (COMMAND)

Command to power cycle an individual outlet.

SEND	<command> <cycleoutlet id="**outlet**"/> </command>	**outlet** = outlet number to power cycle
RECEIVE	None	No response

Example: to power cycle outlet 6

<command><cycleoutlet id="6"/></command>

CYCLE OUTLET GROUP (COMMAND)

Command to power cycle a group of outlets.

SEND	<command> <cycleoutlets grp="**outlets**"/> </command>	**outlets** = affected outlets bitmap, expressed in hex. LSB (bit 0) represents outlet 1, bit 7 represents outlet 8
RECEIVE	None	No response

Example: power cycle outlets 1 and 2

<command><cycleoutlets grp="03"/></command>

See outlet bitmap example, see outlet bitmap example in the above Get Device Settings description Get Device Settings.

SEQUENCE OUTLETS (COMMAND)

SEND	<command><sequence/></command>	Initiates a timed outlet switching operation opposite of the previous timed switching operation. Outlets will switch on (or off) after the set-turn on and turn-off delays.
RECEIVE	None	No response

CHANGE SETTINGS (COMMAND)

SEND	<command><set>**MESSAGE**>/set></command>
RECEIVE	None

Setting	Description	Parameters
<profile>**n**</profile>	Set settings profile. Refer to M4315/20-PRO manual for settings for each profile.	**n** = profile (1,2,3,4)
<dlys> <dly id='**outlet**' sf='**off**' so='**on**'/> <cy butt='**button**'>**delay**</cy> </dlys>	Set outlet delay settings	**outlet** = outlet number **off** = sequence OFF delay **on** = sequence ON delay **button** = button number {1,2,3} **delay** = power cycle delay for the selected button
<grps> <dcin>**OUTLETS**</dcin> <butt id='**button'>OUTLETS**</butt> </grps>	Set input Groups	DC Trigger & Button Input Groups **OUTLETS** = affected outlets bitmap, expressed as a hexadecimal value. LSB (bit 0) represents outlet 1, bit 7 represents outlet 8 **button** = 1: Power cycle outlet with button 1 **button** = 2: Power cycle outlet with button 2 **button** = 3: Force outlet on/off with Button 1 AND Button 2

Examples:

To set the configuration to preset profile 2:

<command><set><profile>2</profile></set></command>

To set outlet 1 turn on delay to 5 seconds and turn off delay to 10 seconds:

<command><set><dlys><dly id="1" sf="10" so="5"/></dlys></set></command>

To set the power cycle delay for Button 2 to 40 seconds:

<command><set><dlys><cy butt="2">40</cy></dlys></set></command>

To set outlets 1-4 to be affected by the DC trigger input (bitmap 0000 1111 = 0f):

<command><set><grps><dcin>0f</dcin></grps></set></command>

To set Button 2 to cycle outlets 5-8 (bitmap 1111 0000 = f0):

<command><set><grps><butt id="2">f0</butt></grps></set></command>

MB1500 / F1500-UPS / F1500-UPS E COMMANDS

Messages to and from the MB1500 / F1500-UPS device are similarly structured in XML. The XML messages are wrapped in the header:

<?xml version="1.0" ?><device class="kmb1500" id="**device_id**">**MESSAGE**</device>

The device class and ID are discovered by issuing the <sendfamily> command to the CV2. See CV2 Target Device ID above.

Note: The device_id will change if the CV2 card is moved to another BlueBOLT compatible product.

For brevity, the XML wrapper will not be included in the description of individual messages.

DEVICE	DEVICE CLASS
Panamax MB1500	kmb1500
Furman F1500-UPS	kf1500
Furman F1500-UPS E	kf1500e

GET DEVICE INFORMATION (QUERY)

Query the firmware version of the connected MB1500 / F1500-UPS / F1500-UPS E.

SEND	<command><sendinfo/></command>	
RECEIVE	<info time="**time**">	Response time stamp, provided in UNIX time
	<fwver>**FW**</fwver>	MB1500/F1500-UPS firmware version
	</info>	

GET DEVICE STATUS (QUERY)

Query the status information of the connected MB1500 / F1500-UPS / F1500-UPS E.

SEND	<command><sendstatus/></command>	
RECEIVE	<status time="**time**">	Response time stamp, provided in UNIX time
	<fwver>**FW**</fwver>	MB1500/F1500-UPS firmware version
	<voltage>	Input line voltage, Vac
	<voltageout>	Output line voltage, Vac
	<amperage>	Input current, Amps
	<wattage>	Real Power, Watts
	<pwrva>	Apparent Power, VA
	<powerfact>	Power factor
	<pwrcond>	Power condition: Normal Recovery Under voltage Over voltage
	<battlevel>	Remaining battery charge % (0.0 - 1.0)
	<loadlevel>	Load capacity used % (0.0 – 1.0)
	<outlet id="**n**">**OSTATE**</outlet>	Outlet **n** status **OSTATE** = 0: Outlet **n** OFF **OSTATE** = 1: Outlet **n** ON
	</status>	

GET DEVICE SETTINGS (QUERY)

Query the configuration settings of the connected MB1500 / F1500-UPS / F1500-UPS E.

SEND	<command><sendstatus/></command>	
RECEIVE	<status time="**time**">	Response time stamp, provided in UNIX time
	<battthresh id="**n**">**thold**</battthresh>	**Non-critical outlet battery threshold** **n** = outlet bank (3 or 4) **thold** = outlet bank n will shut off when the battery storage % drops below this value (0.0-1.0)
	<buzzer>**mode**</buzzer>	**Buzzer Mode** **mode** = 0: OFF **mode** = 1: ON
	<brightness>**bright**</brightness>	**Display Brightness** **bright** = 0.25, 0.5, 0.75, 1.00
	<scroll>**time**</scroll>	**Scroll Mode** **time** = 5, 10 (seconds), 0 = OFF
	<sleep>**time**</sleep>	**Sleep Mode** **time** = 30, 60 (seconds), 0 = OFF
	<normvolt>**voltage**</normvolt>	**Normal Voltage Setting** **F-1500UPS E ONLY** **voltage** = 220: 220 Vac operation **voltage** = 230: 230 Vac operation **voltage** = 240: 240 Vac operation
	</settings>	

SWITCH OUTLET (COMMAND)

Command to switch an individual outlet ON or OFF.

SEND	<command> <outlet id="**outlet**">**OSTATE**</outlet> </command>	**outlet** = outlet number to switch **OSTATE** = 0: switch outlet OFF **OSTATE** = 1: switch outlet ON
RECEIVE	None	No response

Example: to switch **OFF** outlet 4

<command><outlet id="**4**">**0**</outlet></command>

SWITCH OUTLET GROUP (COMMAND)

Command to switch a group of outlets ON or OFF.

SEND	<command> <outlets grp="**outlets**">**OSTATE**</outlets> </command>	**outlets** = affected outlets bitmap, expressed in hex. LSB (bit 0) represents outlet 1, bit 3 represents outlet 4 **OSTATE** = 0: switch outlet OFF **OSTATE** = 1: switch outlet ON
RECEIVE	None	No response

Example: switch **ON** outlets 2 and 4.

```
<command><outlets grp="0a">1</outlets></command>
```

Bit 7 N/A	Bit 6 N/A	Bit 5 N/A	Bit 4 N/A	Bit 3 **Outlet 4**	Bit 2 Outlet 3	Bit 1 **Outlet 2**	Bit 0 Outlet 1
0	0	0	0	**1**	0	**1**	0

CYCLE OUTLET (COMMAND)

Command to power cycle an individual outlet.

SEND	<command> <cycleoutlet id="**outlet**"/> </command>	**outlet** = outlet number to power cycle
RECEIVE	None	No response

Example: to power cycle outlet 2.

```
<command><cycleoutlet id="2"/></command>
```

CYCLE OUTLET GROUP (COMMAND)

Command to power cycle a group of outlets.

SEND	<command> <cycleoutlets grp="**outlets**"/> </command>	**outlets** = affected outlets bitmap, expressed in hex. LSB (bit 0) represents outlet 1, bit 3 represents outlet 4
RECEIVE	None	No response

Example: power cycle outlets 1 and 2

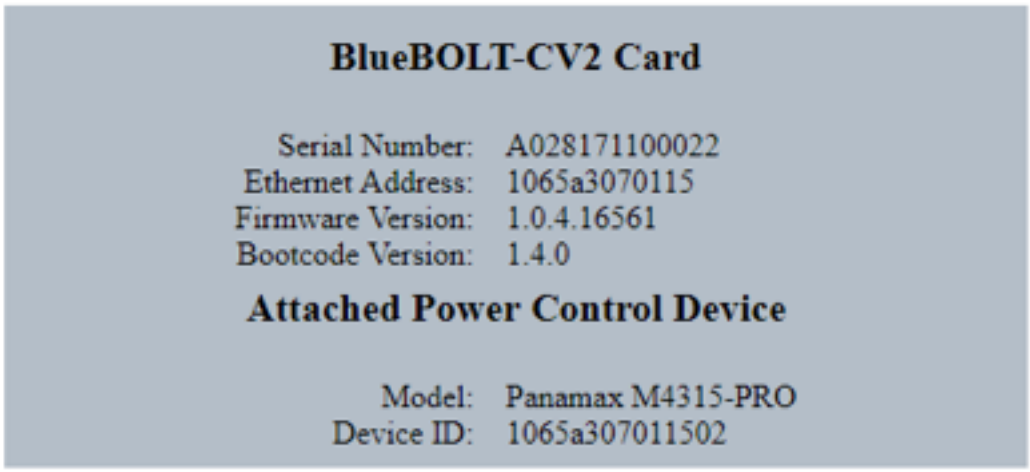
<command><cycleoutlets grp="**03**"/></command>

Bit 7 N/A	Bit 6 N/A	Bit 5 N/A	Bit 4 N/A	Bit 3 Outlet 4	Bit 2 Outlet 3	Bit 1 **Outlet 2**	Bit 0 **Outlet 1**
0	0	0	0	0	0	**1**	**1**

SEND	<command><set>**MESSAGE**</set></command>
RECEIVE	None

SETTING	PARAMETERS
<avr>**mode**</avr>	**Set Automatic Voltage Regulation Mode** **mode** = 0: OFF **mode** = 1: Standard **mode** = 2: Sensitive
<battthresh id='**n**'>**thold**</battthresh>	**Set Non-critical outlet battery threshold** **n** = outlet bank (3 or 4) **thold** = outlet bank n will shut off when the battery storage % drops below this value (0.0-1.0)
<buzzer>**mode**</buzzer>	**Set Buzzer Mode** **mode** = 0: OFF **mode** = 1: ON
<brightness>**bright**></brightness>	**Set Display Brightness** **bright** = 0.25, 0.5, 0.75, 1.00
<scroll>**time**</scroll>	**Set Scroll Mode** **time** = 5, 10 (seconds), 0 = OFF
<sleep>**time**</sleep>	**Set Sleep Mode** **time** = 30, 60 (seconds), 0 = OFF

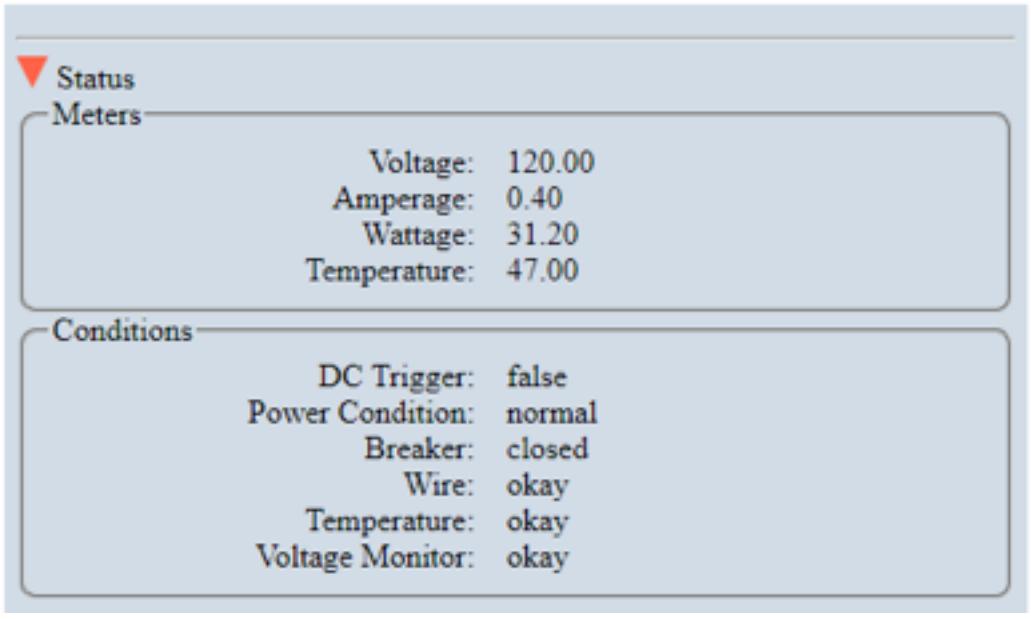
EMBEDDED WEB



STATUS PAGE

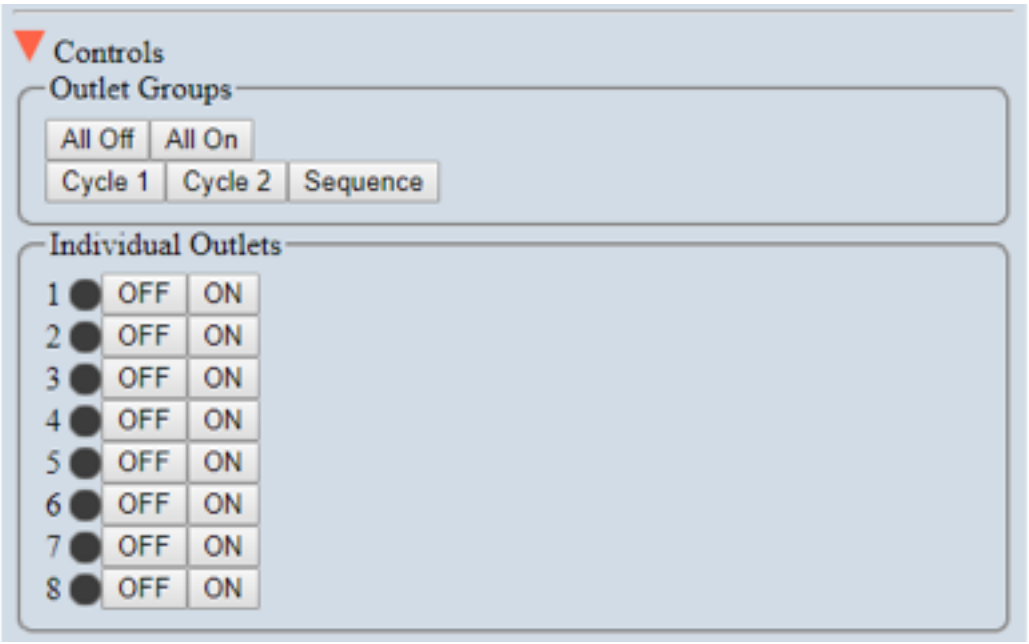
Meters

Conditions



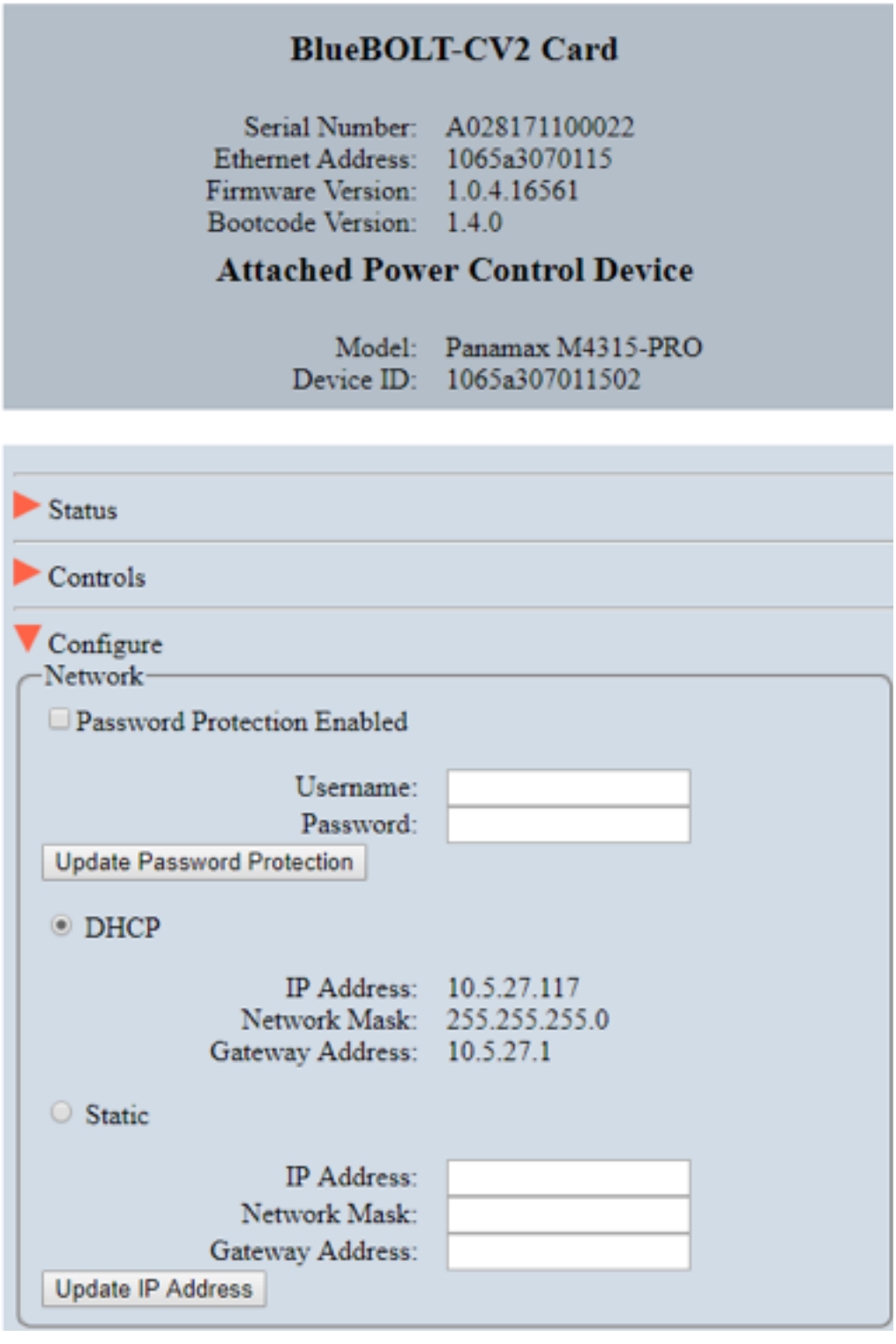
CONTROLS PAGE

Outlet Groups & Individual Outlets



CONFIGURATION PAGE

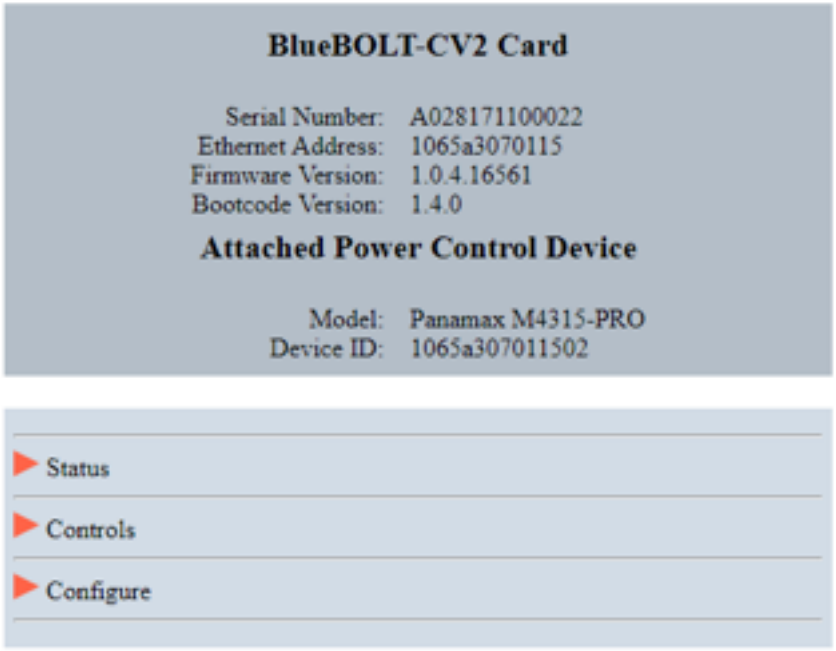
The configuration page is where you make your network, attached device, and password protection settings.



PASSWORD PROTECTION

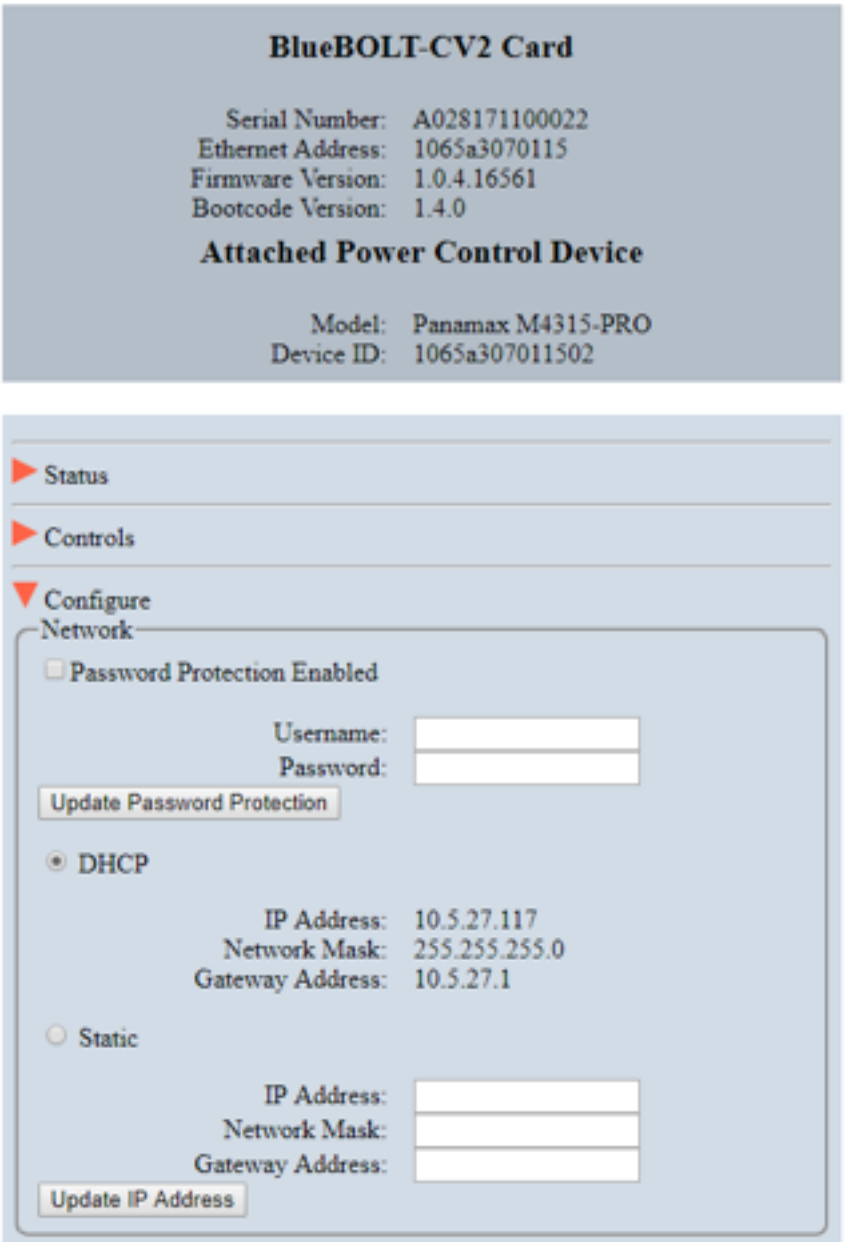
Once you have claimed your BlueBOLT-CV2 you can set up password protection. To do so you need to enter the Local IP address of the BlueBOLT-CV2 card into your browser. You can locate the Local IP Address by clicking on Device Admin within the BlueBOLT user interface. This will take you to the embedded web page of the BlueBOLT-CV2.

Note: You must be on the same network as the BlueBOLT-CV2 to view the embedded web page.

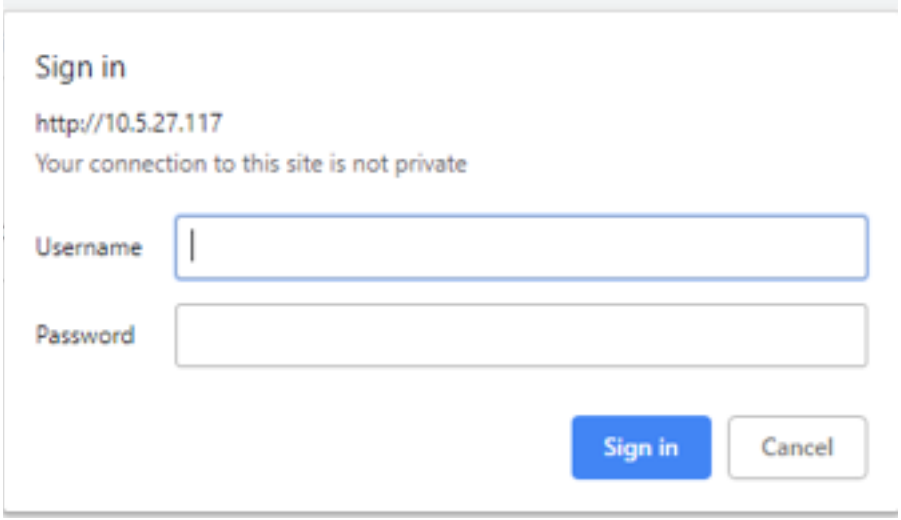


Once you are logged into the embedded webpage of the BlueBOLT-CV2 click on Configuration.

Input a user name and password, check the box for “Password Protection Enabled”, and click the “Update Password” button.



Once you have enabled the password protection your browser will prompt you to sign in using the new admin and password. Depending on your browser you may need to refresh the page, if the log in screen flashes of the screen.



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