Integration Note

Manufacturer:	Furman, Panamax
Model Number(s):	**Furman F1000, F1500** **Panamax M4320, MB1000, MB1500**
Core Module Version:	**g!** 5.6 or newer
Document Revision Date:	2/1/2013

OVERVIEW AND SUPPORTED FEATURES

Furman/Panamax makes a line of power conditioning/UPS devices that feature either an Ethernet or optional Serial card for control and feedback. In the current version of the **g!** software, the Furman/Panamax UPS will provide system events to the **g!** controller after an AC power loss, when AC power is restored, low battery alert, and when the system is restarted (see below for details). These events can be used to trigger event maps in the **g!** system such as sending out an email notification of the power loss. If the controller is connected to the Battery Backup side of the UPS, when AC power is restored the UPS will turn on and the controller will restart. An integrated UPS' outlets may also be controlled from **g!** Event Mapper.

THE FURMAN/PANAMAX UNITS SUPPORT THE FOLLOWING FEATURES:

Event Notification: Notification of Events such as power loss/restore is supported. See Available Events for full details.

Outlet Control: Control of integrated outlets, outlet banks, or restarting outlets (Ethernet Only) is available. See the Available Commands section for full details.

Ethernet or Serial Control: Automation control is available via serial or Ethernet as configured. Ethernet control can operate alongside "BlueBolt" features. Note: Installing the serial card for serial control will inherently disable Blue Bolt web features as the UPS will no longer see the internet.

THE FURMAN/PANAMAX UNITS DO NOT SUPPORT THE FOLLOWING FEATURES:

BlueBolt within g!: When controlling Ethernet and Enabled, BlueBolt features are available as usual from the BlueBolt webpage. BlueBolt webpages and BlueBolt web-based features are not available within the **g!** interface.

UPS/Power Regulation Modes: The Furman/Panamax units support some different modes and settings for the UPS and Power Regulation functions. It is not possible to view/configure these options from the **g!** system.

Other features/setup: Unless specifically mentioned in supported features, other features such as NCL rules on battery shutdown, IR transmission and so on are not available from the **g!** system and should be configured as normal within the UPS. The operation of any of these features/modes should be transparent to the **g!** system and they should not impact each other.

Control using Global Cache Serial Port: The Furman/Panamax UPS devices are not compatible with the serial port on the Global Cache.

Any feature not specifically noted as supported should be assumed to be unsupported.

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IMPORTANT NOTES:

- In order to use the Event Mapper to send email alerts or make phone calls when power is lost, it is required that all the appropriate subsystems (e.g. modems, network switches, etc.) are also connected to a UPS system. Likewise, if controlling the UPS via Ethernet, it is important that any necessary Ethernet equipment be attached to battery backup to ensure communication during a power event.
- The Panamax M4320 does not include a battery, and has no power loss prevention features. See Events and Commands for special remarks based on device differences.
- The Furman/Panamax should be configured for proper modes and features according to normal manufacturer procedures, with the special notations listed below in the Installation section (as appropriate).
- On first connection, and on any restart the Furman/Panamax will be queried for power state. This may cause a few BlueBolt Alert emails to be sent at this time. One workaround to prevent these emails is to not utilize the "Power Normal" Alert email from BlueBolt. The Battery Charging alert could be used as a reasonable substitution for battery models. The Panamax M4320 has a "Recovery" power mode that may be used.

AVAILABLE EVENTS:

The following notifications are available as system events in the **g!** Event Mapper:

- Outlet/Bank On/Off – Event triggered when an outlet or bank (as appropriate for your model) turns on/off
- AC Power Lost* – Event triggered when power to the UPS is lost
- AC Power Restored* – Event triggered when power is restored to the UPS prior to it shutting down
- Low Battery* – Event triggered when the UPS battery is low and it is about to shut down
- System Restarted* – Event triggered the next time the **g!** system is restarted after receiving a low battery notification

  **Not applicable to Panamax M4320—this unit lacks batteries and cannot communicate without AC main power.*

- Power Recovery -- Event triggered from the *Panamax M4320 only* after power is restored to unit after a main AC loss.

  IMPORTANT: For this event to be reliable, a connection to the Panamax must be re-established within a brief startup window following power restore, creating a potential for this event to be missed. It may be desirable to utilize BlueBolt Alerts to supplement Events in **g!** and provide some redundancy to tracking this event if this feature is important to you.

AVAILABLE COMMANDS:

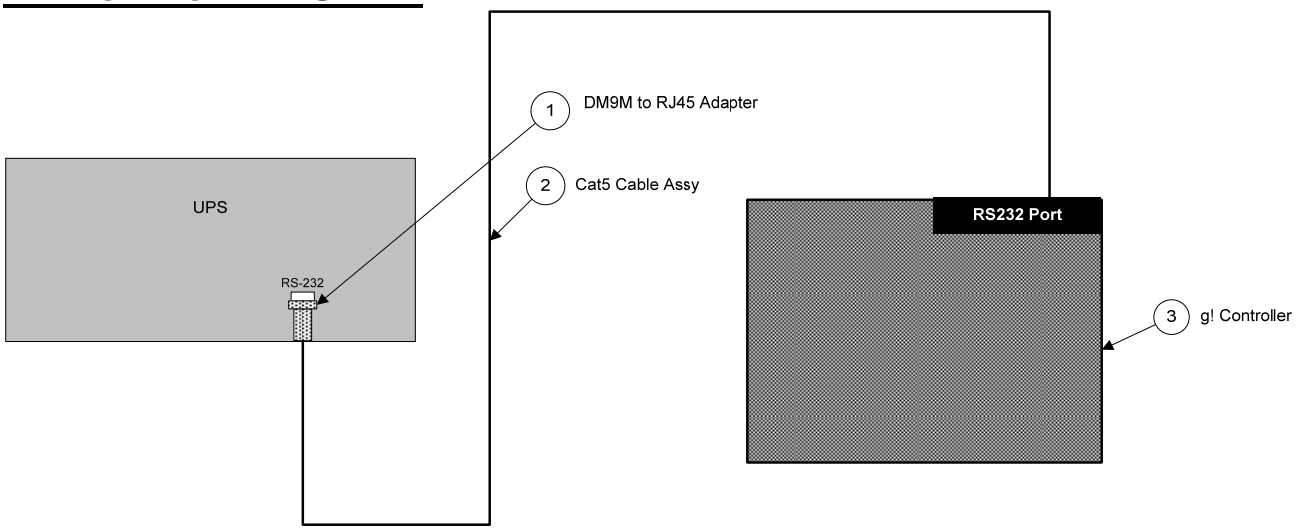
The following controls are available as system events in the **g!** Event Mapper:

- All Outlets Off/On – Turn all outlets on the unit off or on
- Outlet/Bank *X* Off/On --Individual Outlets/Banks off or on
- Power Cycle Outlet – Individual Outlets/Banks power off for 30 seconds, then power back on. Available with Ethernet Control ONLY.
- Power Cycle Outlet: Reboot 1/2 -- Identical to press Reboot 1 or Reboot 2 button on front panel. Available with Panamax M4320 ONLY.

INSTALLATION OVERVIEW

1. Install the UPS at the desired location, and pull power and communication cable as needed.
2. Connect the UPS electrically to the controller.
3. Integrate the UPS into the **g!** system and test proper operation. This step is outlined in **g! Configuration Details**.
4. Note that battery backup should be provided to systems such as networking gear if communication over Ethernet/**g!** system alerts are desired during power loss.

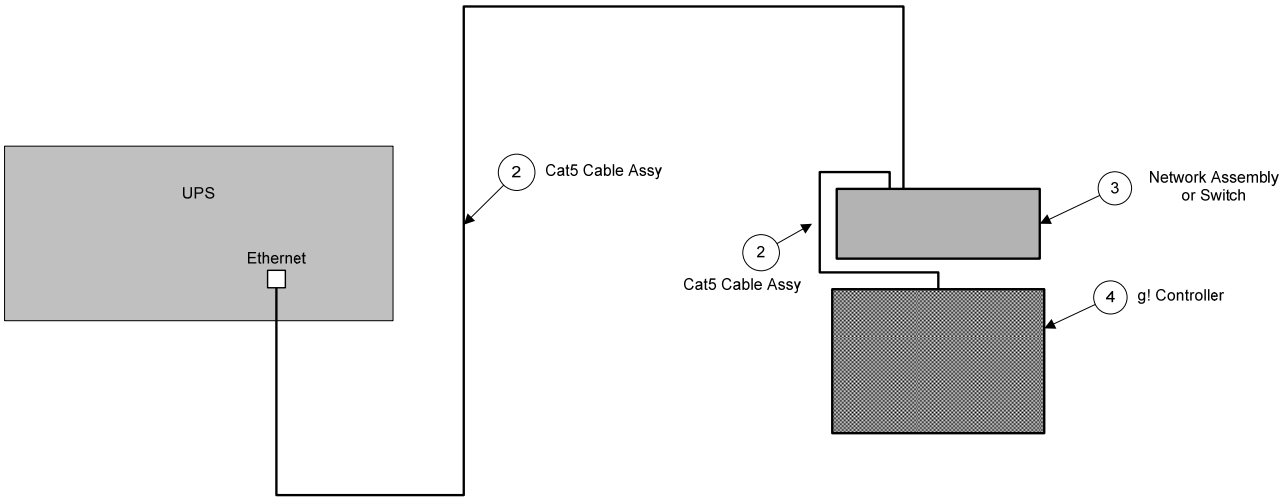
WIRING DIAGRAM – SERIAL



#	Device	Manufacturer	Part Number	Protocol	Connector Type
1	DB9M to RJ45 Adapter	ELAN	HA-CB-307	RS-232	DB-9 Male X RJ-45 Female
2	Cat5 Cable Assy.	Installer	N/A	RS-232	RJ-45 Male X RJ-45 Male
3	**g!** Controller	ELAN	Various (ex. HC12)	RS-232	RJ-45 Female X RJ-45 Female

The serial card must be installed correctly in place of the Ethernet card. No other setup is required. Note that BlueBolt “cloud” features will not be usable when the Ethernet card is not installed.

WIRING DIAGRAM – ETHERNET



#	Device	Manufacturer	Part Number	Protocol	Connector Type
1	Cat5 Cable Assy.	Installer	N/A	Ethernet	RJ-45 Male X RJ-45 Male
2	Network Assembly	ELAN	HW-NA-18X4	Ethernet	RJ-45 Female
3	**g!** Controller	ELAN	Various (Ex. HC-12)	Ethernet	RJ-45 Female

The Ethernet card is typically installed by default. If not, follow the included instructions to install the Ethernet card.

Ethernet Setup Instructions:

1. The device should be assigned a static IP for reliable control from the **g!** system.
2. To assign a static IP address, you must first locate the IP address as they are DHCP by default.
    a. Many units have a front panel display and menu navigation. To find the IP Address, press the button to enter the menu and then scroll to System Info. Tap to enter System Info and scroll once to see the IP Address.
    b. Some units do not feature a detailed front panel display/menu. If this is the case, you may use one of the following methods:
        i. Use your router DHCP table to find the IP address. Typically this is in the DHCP, Local Network, or LAN section, but this varies from router to router. Consult manufacturer documentation for details.
        ii. Check **g!**Tools Network Manager tool. After scanning the network (Refresh), compare the MAC address (provided on a sticker included with the UPS Manual) to the network scan and locate the IP address.
3. Open a browser and type in the IP address of the UPS to open the UPS webpage GUI. Note: login to the local webpage, not your BlueBolt account.
4. Enter the LAN Configuration page.
5. Uncheck the “Configure using DHCP server” option near the bottom of the listing, then click Modify (but *do not* click Save Changes yet).

6. IP Settings fields become available. Enter valid IP information as follows:
    a. IP Address: It is suggested to enter **192.168.0.55** for the first UPS, 192.168.0.56 for the second UPS and so on.
    b. Subnet Mask (typical): **255.255.255.0**
    c. Gateway and DNS: *[ROUTER IP]* **192.168.0.1**
    d. Click **Modify**, wait a moment, and **then click Save Changes**.
7. The unit will prompt you to reboot—click OK and the IP card will power cycle.

IMPORTANT: You must login to the new IP (by typing the new IP address into your browser address bar), enter LAN Configuration and click Validate Settings within 3 minutes for the new settings to become permanent! If you do not Validate Settings the unit will return to the previous IP settings.

8. Lastly, enter the Administration Page and ensure TELNET server is enabled and listening on Port 23 (default setting).

g! CONFIGURATION DETAILS

The following table provides settings used in the **g!** Configurator when connecting to a Furman/Panamax UPS. Please refer to the *Configurator Reference Guide* for more details.

In the table below:

- o "<Select>" Select the appropriate item from the list (or drop-down) in the Configurator.
- o "<User Defined>", etc. Type in the desired name for the item.

Devices	Variable Name	Setting	Comments
Communtication Device	**Name**	<User Defined> (Default: **UPS**)	
Serial	**Device Type**	**Serial Port**	
	Communication Type	**Standard Connection**	
	Location	<User Defined> (Not Required)	
	Com Port	**Select from list**	
OR			
Communtication Device	**Name**	<User Defined> (Default: **UPS**)	
Ethernet	**Device Type**	**Ethernet**	
	Communication Type	**Standard Connection**	
	Location	<User Defined> (Not Required)	
	IP Address	**<User Defined>**	
	Port	**23**	
UPS Power Supply	**Name**	<User Defined> (Not Required)	
	Device Type	**Select from list**	**Choose correct model from list**
	Location	<User Defined> (Not Required)	
	Com Device	**Select from list**	

COMMON MISTAKES:

1. Failing to set the static IP correctly. Follow the steps above to change the IP address and then validate the changes in order for the change to become permanent.