POWEREX
PURE AIR TECHNOLOGY

Medical Vacuum Systems-PBMI

Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.

Description

CONTROL PANEL
The Medical Vacuum System is controlled by a (Programmable Logic Controller) PLC. The operating status is displayed on the Powerex Building Management Integrator (PBMI) 6" color touch Screen panel on the front of the unit. The PBMI controls are contained in a NEMA 4/12 enclosure for multiplex configurations and meet NFPA 99 requirements for medical vacuum. The panel is UL508A listed and labeled. The panel door will also include: audible and visual alarms with an acknowledge button and an HOA switch for each pump.

The PBMI controls allow the user to view system functions, the factory set points, and navigate through the screens to get more information about the operation of the individual vacuum modules. Staff can receive email notifications for service alerts and system alarms, the details of which are also displayed on the built-in webpage.

Dry contacts for remote signaling include: reserve pump in use and a general fault to indicate the following: high temperature, motor overload trip, and reserve transformer in use. The PBMI controls contain a Building Automation System (BAS) communication gateway with BacNet® protocol and Web server features. The BAS communication gateway can support hundreds of pre-configured, labeled, and listed individual data points and utilizes a 10/100 BaseT Operation Ethernet port connection. Web server features include email notifications in case the system is in alarm for any reason or has achieved one of its maintenance intervals and requires service.

General Safety Information

A SEPARATE SAFETY BOOKLET IS PROVIDED ALONG WITH THIS MANUAL. READ AND UNDERSTAND THE SAFETY BOOKLET. This manual contains information that is very important to know and understand. This information is provided for SAFETY and to PREVENT EQUIPMENT PROBLEMS. MAKE SURE EVERYONE OPERATING OR SERVICING THE COMPRESSOR READS AND UNDERSTANDS ALL THE INFORMATION PROVIDED.

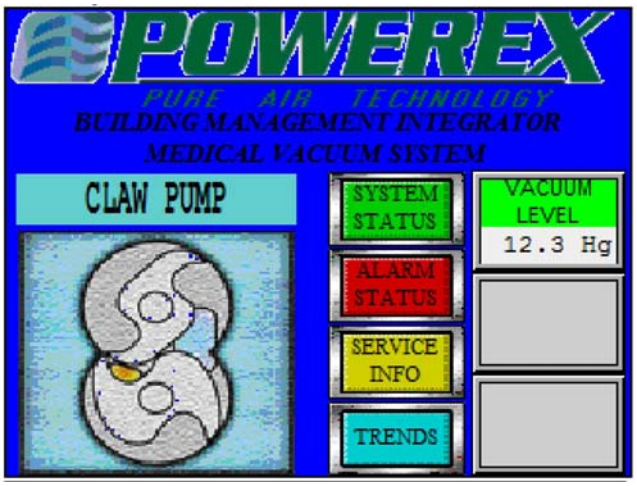
CONTROL PANEL - DISPLAY AND INPUT
The Powerex Medical Vacuum System has a HMI panel on the front to allow operation and monitoring of the unit. Once the unit is turned on, the main screen should appear (see example below). The picture of the pump on the main screen should match the type of pump technology on your system and will display either a claw pump, an oil-less rotary vane pump, or an oil-sealed rotary vane pump as appropriate. From the main screen, select the PUMP STATUS button for information about each pump on the system. Select ALARM STATUS to view the alarm screen and alarm history information. Select TRENDS to view daily load factor and total system run hours. Select SERVICE INFO for our service contact information, to expand the number of pumps on your system, the system model and serial number, to adjust the screen contrast, or adjust time and date.

Table of Contents

Powerex - 150 Production Drive - Harrison, Ohio 45030 - USA
1-888-769-7979 - www.powerexinc.com

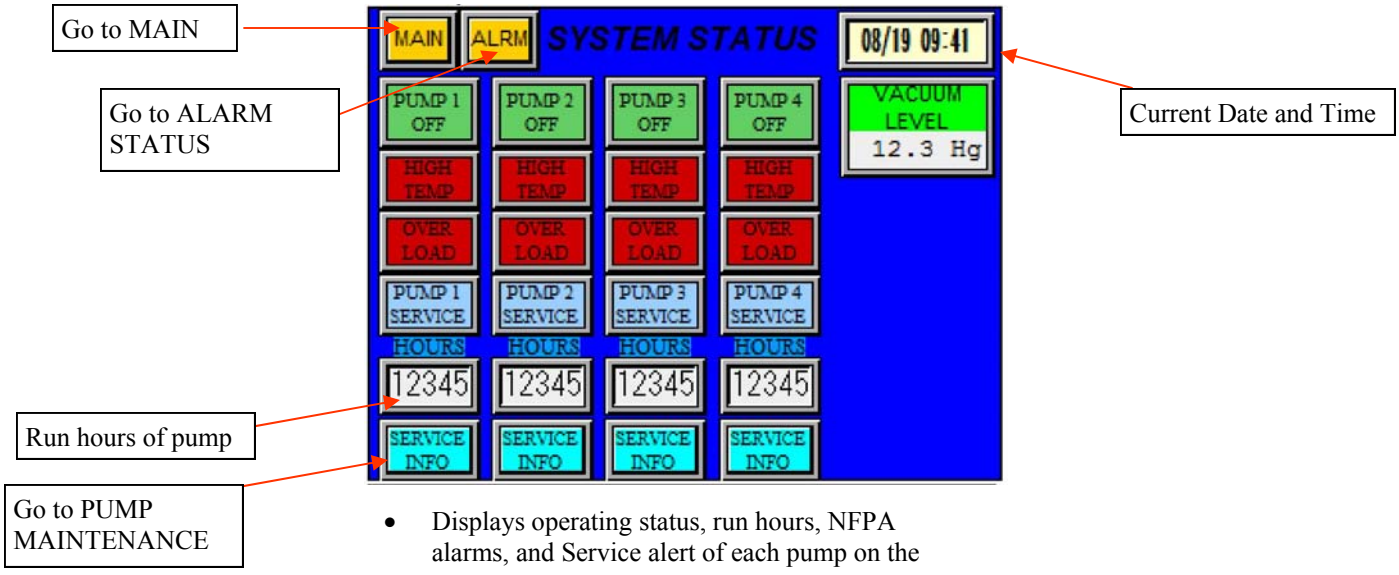
STATUS SCREENS

PG1—'MAIN'



- Displays Vacuum level
- Vacuum level will change from green to orange when low; will change from orange to red when in alarm
- System Status, Alarm Status, Service Info and Trends buttons will redirect to those specific pages

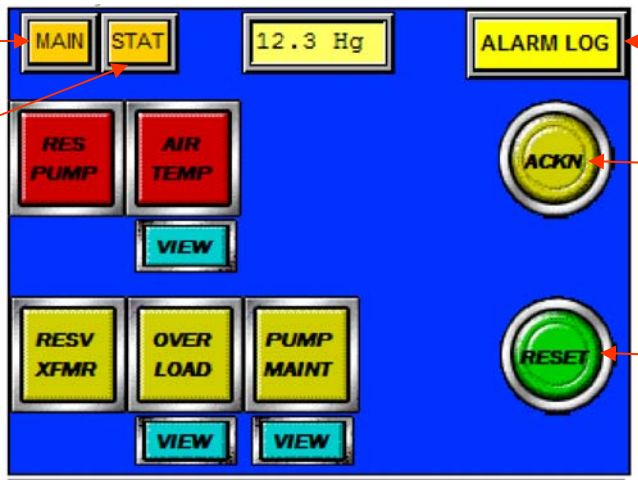
PG2—'SYSTEM STATUS'



- Displays operating status, run hours, NFPA alarms, and Service alert of each pump on the system
- Displays Vacuum level of system like on MAIN page

ALARM SCREENS

PG3—'ALARM STATUS'



Go to MAIN

Go to SYSTEM STATUS

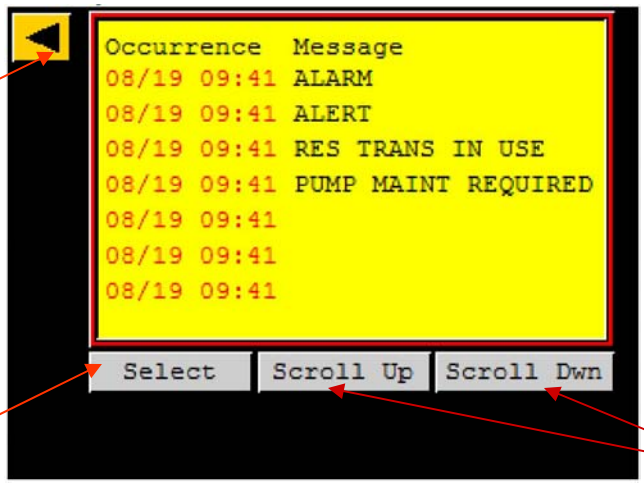
Go to ALARM LOG

Acknowledge system is in alarm

Reset alarm if problem has been corrected

- Displays NFPA alarms and service alerts
- Acknowledge and reset alarms
- Displays Vacuum Level

PG4—'ALARM LOG'



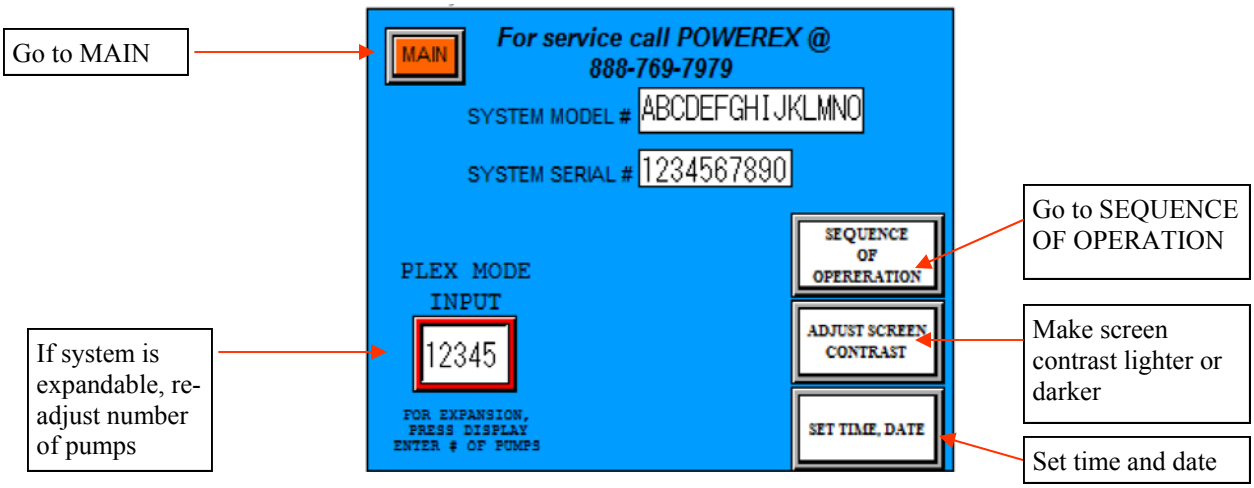
Go to ALARM STATUS

Select a specific record

Scroll page up or down to see more records

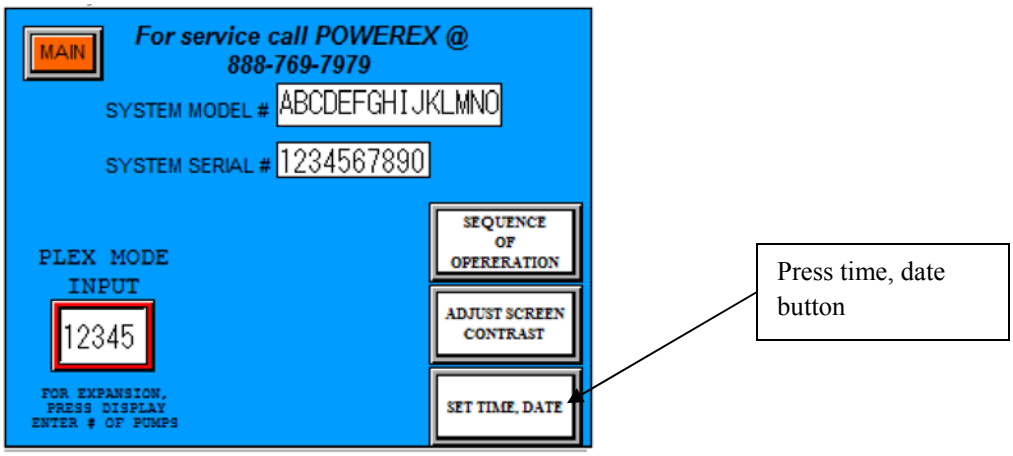
- Record of all alarms, warnings and service alerts with date and time

PG5—'SERVICE'

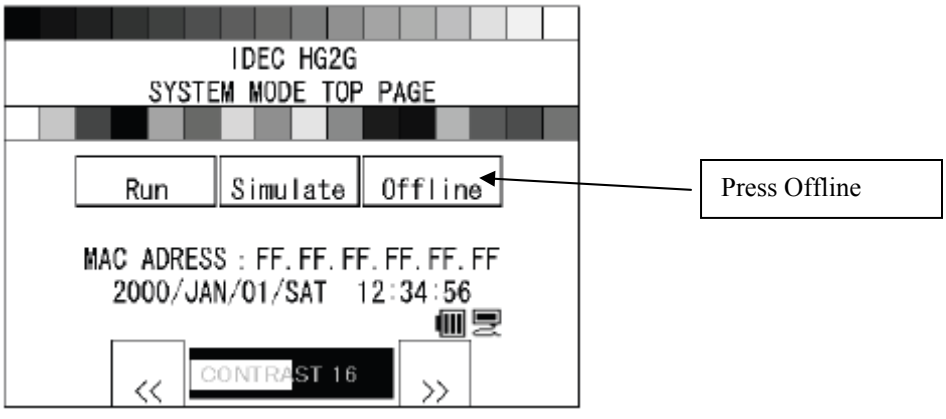


- Displays model number, serial number, service phone number
- If system is expandable, use Plex Mode Input to adjust PLC Program to additional pumps

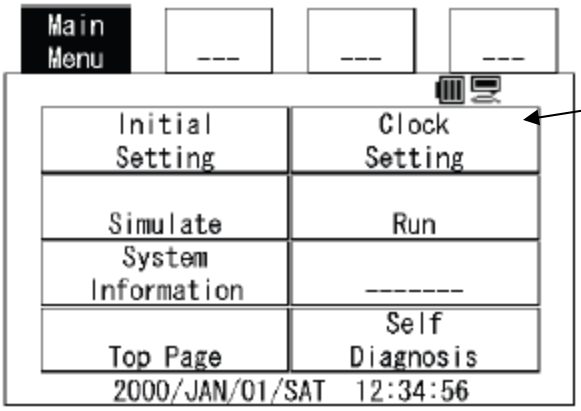
TO SET TIME AND DATE:



THIS SCREEN WILL APPEAR



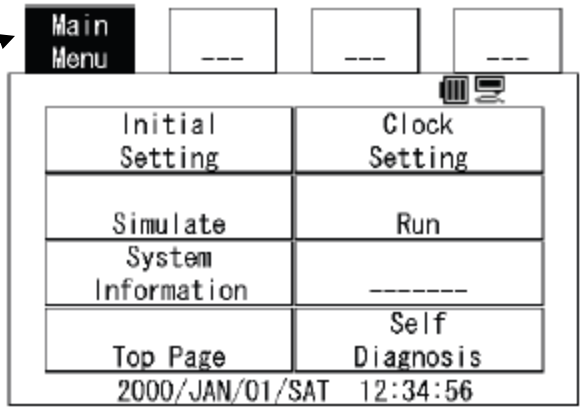
THIS SCREEN WILL APPEAR



Press Clock Setting and enter time and date.

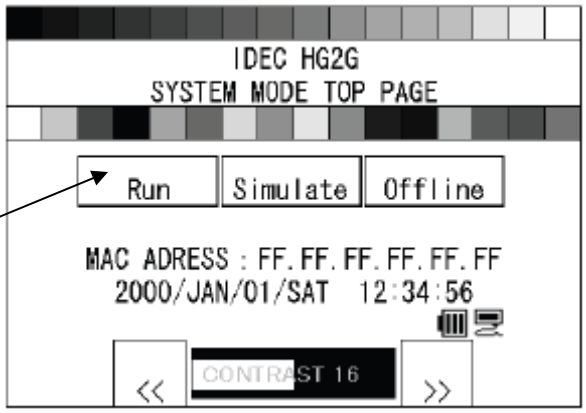
TO RETURN TO RUN MODE:

Press Main Menu tab

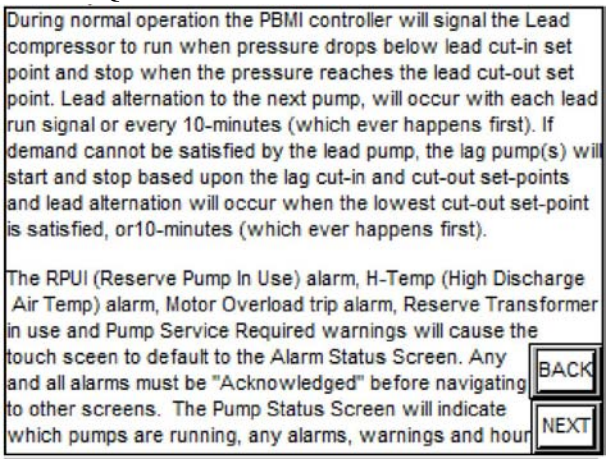


THIS SCREEN WILL APPEAR

Press Run and HMI will return to normal operation and SERVICE screen

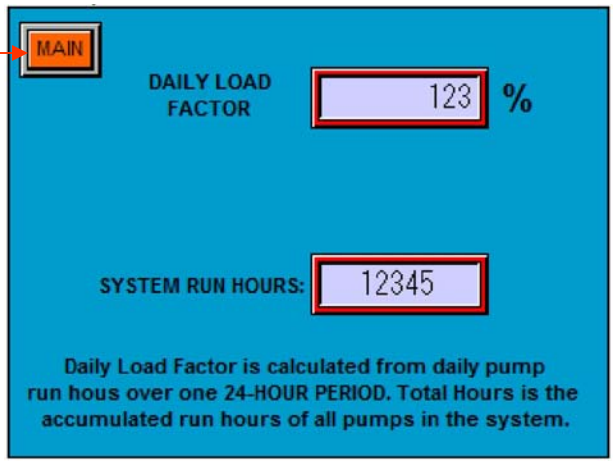


PG6—'SEQUENCE OF OPERATION'



PG7—'DAILY LOAD FACTOR'

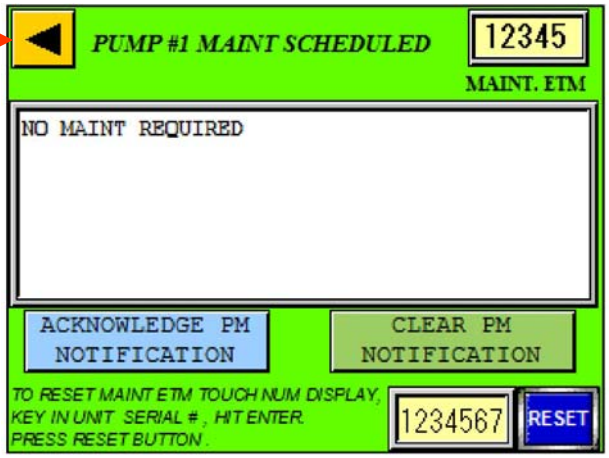
Go to MAIN →



MAINTENANCE SCREENS

PG8—'PUMP MAINTENANCE'

Go to MAIN →



- At specific preset hour intervals, pump maintenance instructions will be displayed; this is specific to each pump

Gateway Start-Up

OVERVIEW

The 460MX-S027 Gateway device seamlessly connects Modbus RTU Slave devices to a BACnet®/IP client. By following this guide, you will be able to configure the 460MX-S027 Gateway for basic operation. You will set the device's network settings and parameters to the proper configuration for initial operation and physically place the device in the network.

REQUIRED TOOLS AND DATA

You will need the following tools:

- The 460MX-S027 Gateway
- The provided CD-ROM
- A Working PC (Windows based)
- The Supplied Ethernet Crossover Cable
- A 7-30 VDC power source (T-strip)

NETWORK CONNECTIONS

The Gateway is shipped out with a Default IP Address of 172.16.3.159 and a Subnet of 255.255.248.0. In order to browse for the gateway's main page and begin configuring the gateway, you must change your PC to be on the same network as the gateway.

1) Change the IP Address of your PC to be 172.16.3.158.
2) Change the Subnet of your PC to be 255.255.248.0.
3) Open IPSetup.exe and browse for the gateway under select a unit.
4) Change the IP Address and Subnet to be on your network.
5) Click Set.
6) Change the PC's IP Address and Subnet back to its original settings.
7) Browse for the Unit using IPSetup.exe and launch the webpage.

ACCESSING THE MAIN PAGE

Before you can configure the gateway itself, you must configure the network settings to connect the gateway. The following steps will connect the gateway properly.

1) Connect the 7-30 VDC power source to the device.
2) Using the supplied crossover cable, connect the device to the PC.
3) Insert the provided CD-ROM.
4) Run the IPSetup program from the CD-ROM.
5) Configure the IP Settings based on your subnet.
6) Click **Set**.
7) Click **Launch Webpage**. The Main page should appear.

NOTE

Browser configuration is only Internet Explorer compatible. The use of FireFox is not supported.

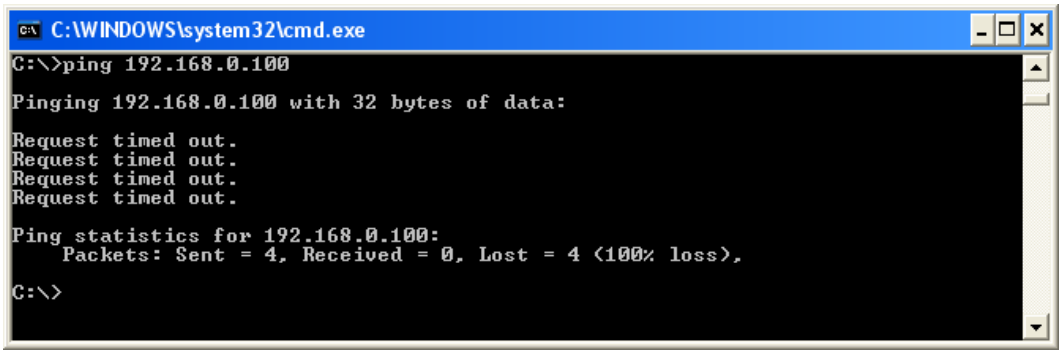
Default IP address is 172.16.3.159

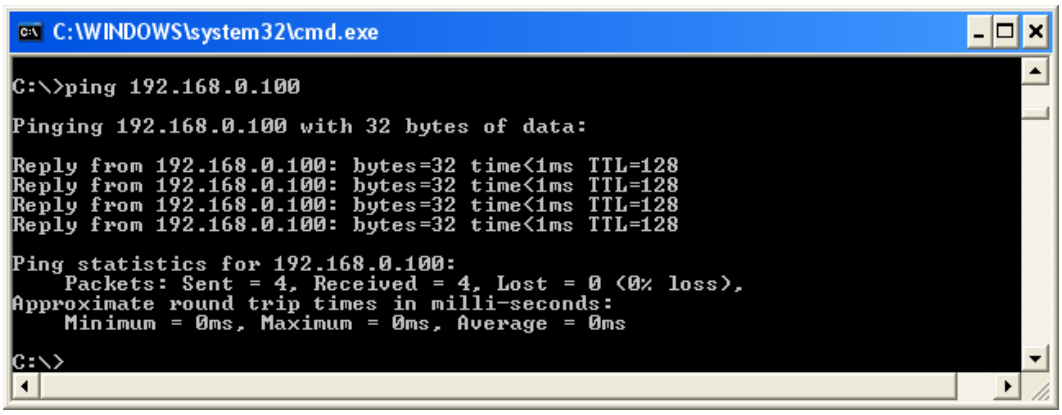
Gateway Trouble-shooting

ERROR: MAIN PAGE DOES NOT LAUNCH

If the Main Page does not launch the IP Address is most likely incorrect. Correct the IP Address and try again. If you do not know the IP Address use the following procedure:

1) Open an MS-DOS Command Prompt.
2) Type ipconfig and press enter.
3) Note the IP address. (The previous example was 192.168.0.1)
4) To test the communication between the PC and the unit type ping (###.###.###.###) in the prompt and press Enter. The (###.###.###.###) is the IP address of the unit you used in step 5 of network configuration, which is 192.168.0.100 by default. If the device is connected to the network the ping will show a response. If you get no response check the crossover cable.





Gateway Start-Up

BACnet®/IP Server Settings

1) Click Edit next to the BACnet® Server row. Verify that the Enabled box is checked.

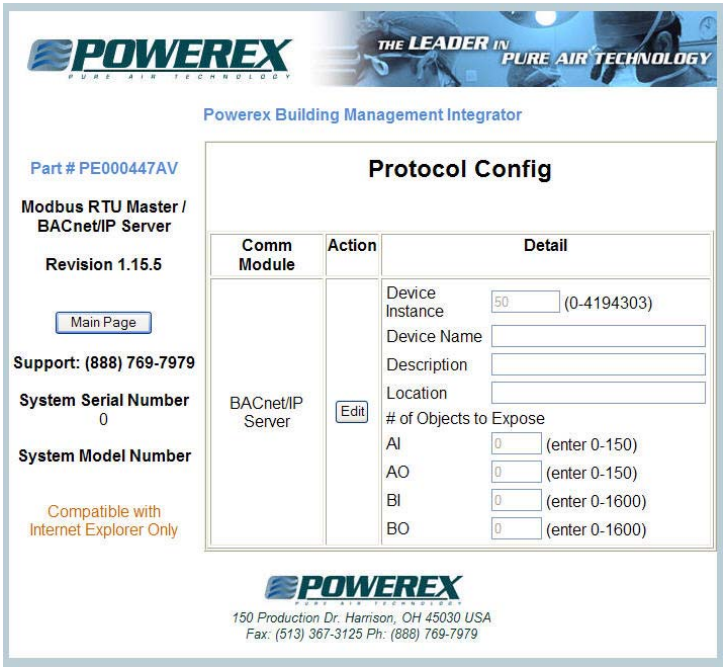
2) Enter the Device Instance that corresponds with your BACnet®/IP Server device.

3) In the Device Name field enter a unique name for the device.

4) The Description and Location fields are optional. Filling in this information is recommended to identify the device on a network.

5) Beneath # of Objects to Expose, enter in the number of Analog Input (AI), Analog Output (AO), Binary Input (BI), and/or Binary Output (BO) objects that you will be accessing from the BACnet®/IP Client.

6) Click **Save**.



ALARM CONFIGURATION

1) Click Edit next within the Alarm Configuration section from the Main Page

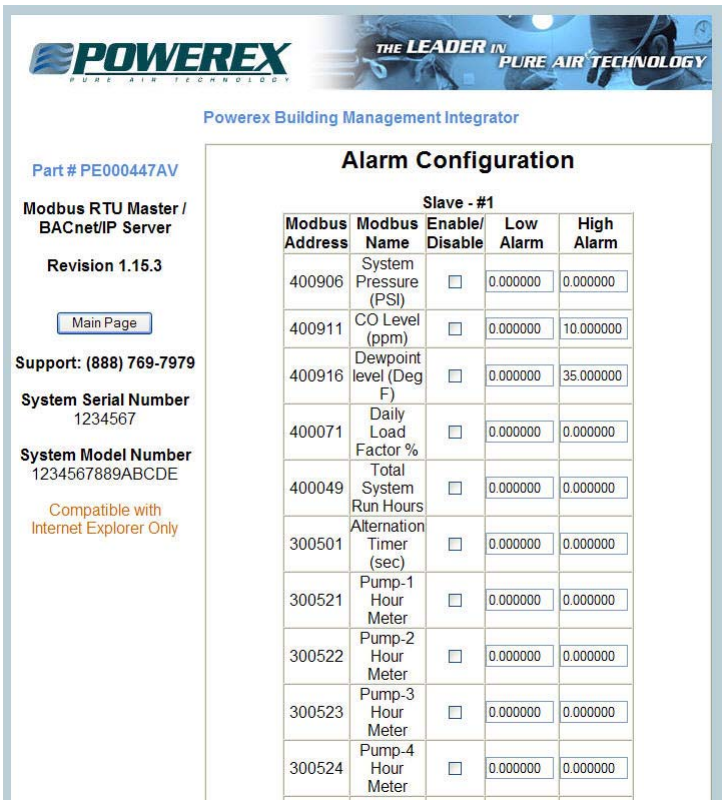
2) To enable an alarm, check the box within the Enable/ Disable column.

3) If an alarm is enabled, then the Low Alarm and High Alarm must be set.

4) If the value of the point falls below the Low Alarm, the alarm is set and an e-mail is generated if e-mail is configured.

5) If the value of the point reaches the High Alarm, the alarm is set and an e-mail is generated if e-mail is configured.

6) Scroll to the bottom and Save.



EMAIL CONFIGURATION

1) Click Edit next to the Email Configuration section from the Main Page

2) Enter a SMTP Mail Username. This e-mail must have SMTP capability set up.

3) If the SMTP device requires authentication, please enter in the Password for the SMTP Mail Username.

4) Enter in the SMTP Server that is being used.

5) Enter in the Email Address of the sender. This is going to be the same field as Step 2

6) Enter in the Email Address of the recipient.

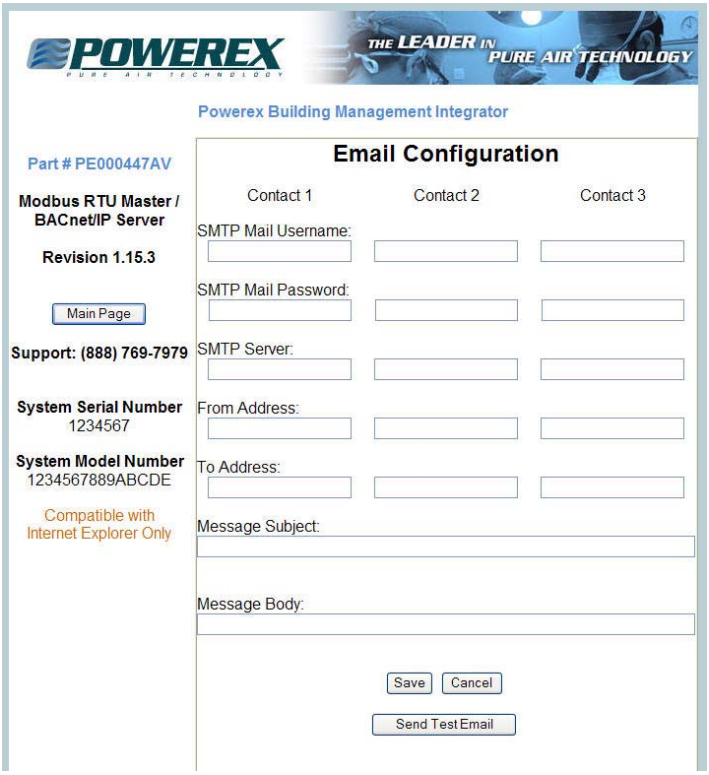
7) Repeat steps 2-6 for multiple recipients.

8) Enter the Subject of the Email to be sent. This will be used for all 3 e-mail's

9) Enter an extension of the Message Body. Every Email will have a Body of Email that specifies the Alarm and the value of the current alarm that was triggered. This field will be added after the standard body.

10) Click **Save**.

11) Click Send Test Email to verify all of the Email settings are correct.

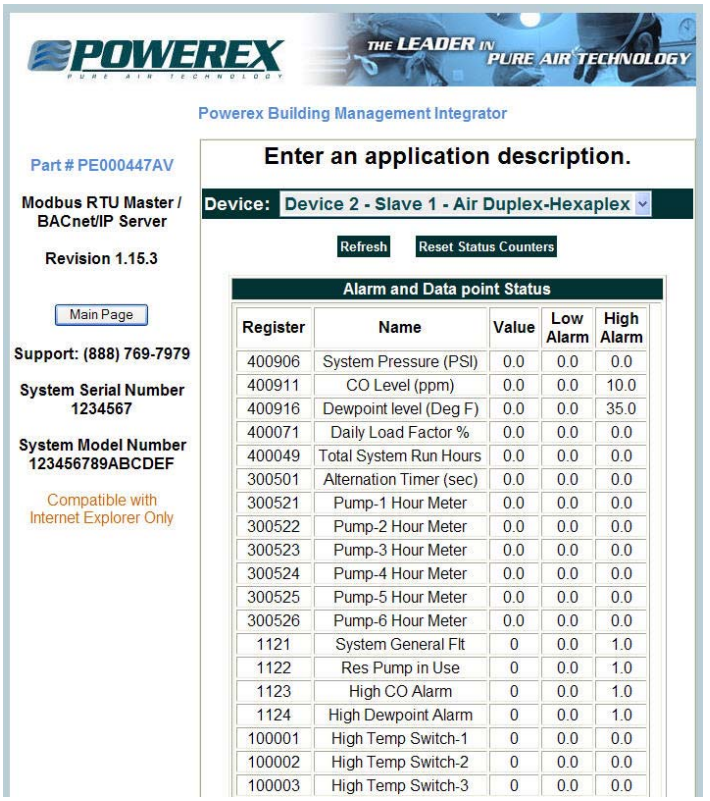


SYSTEM STATUS

1) This page shows the Modbus Point, Point Name, Value, and if an Alarm is set, the Low and High Alarm.

2) The value will show the current value of the point upon a Refresh of this page.

3) If an alarm is enabled and is triggered, the point in an alarm state will be displayed in Red.

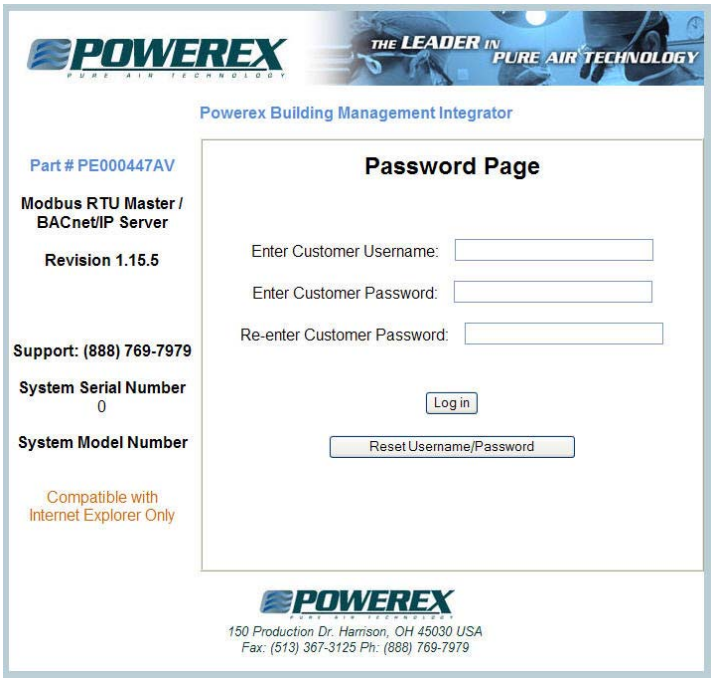


LOCKING THE SYSTEM

To lock the system within the network, click the Lock the System button found on the Main Page.

1) Upon first time locking the system, enter in a Username, Password, and Re-enter the password. This will be the same Username and Password for this gateway.

If the Username and/or Password is ever forgotten, click the "Reset Username/Password".



RESET THE USERNAME/PASSWORD

Please call Powerex at (888) 769-7979 with the MAC Address of the gateway. Once the correct Powerex Password is entered, you will be redirected to the Login Password and be prompted to enter in a new Username and Password.