

PLC Multipoint



Start-up Guide

ProtoCessor FPC-ED2

For Interfacing PLC Multipoint Products



Document Revision: 2.D

Web Configurator

Technical Support

Thank you for purchasing the ProtoCessor for PLC Multipoint.

Please call PLC Multipoint for technical support of the ProtoCessor product.

MSA Safety does not provide direct support. If PLC Multipoint needs to escalate the concern, they will contact MSA Safety for assistance.

Support Contact Information:

PLC-Multipoint, Inc.
3101 111th St. SW Suite F
Everett, Washington 98204-3590

Customer Service:
(866) 998-5483

Email: tech@plcmultipoint.com

Website: <https://plcmultipoint.com/>

Quick Start Guide

1. Record the information about the unit. (**Section 2.1**)
2. **If using a serial field protocol:**
Connect the ProtoCessor FPC-ED2 3 pin RS-485 port to the field protocol cabling. (Section 3.1)
3. Connect a PC to the ProtoCessor via Ethernet cable. (**Section 4**)
4. Setup Web Server Security and login via web browser. (**Section 5**)
5. Use a web browser to access the ProtoCessor Web Configurator page to enter any necessary device information for the device attached to the ProtoCessor. The ProtoCessor automatically builds and loads the configuration. (**Section 6**)
6. Ethernet Network: If using an Ethernet field protocol, use a browser to access the ProtoCessor Web Configurator to change the IP Address. (**Section 6.3**)

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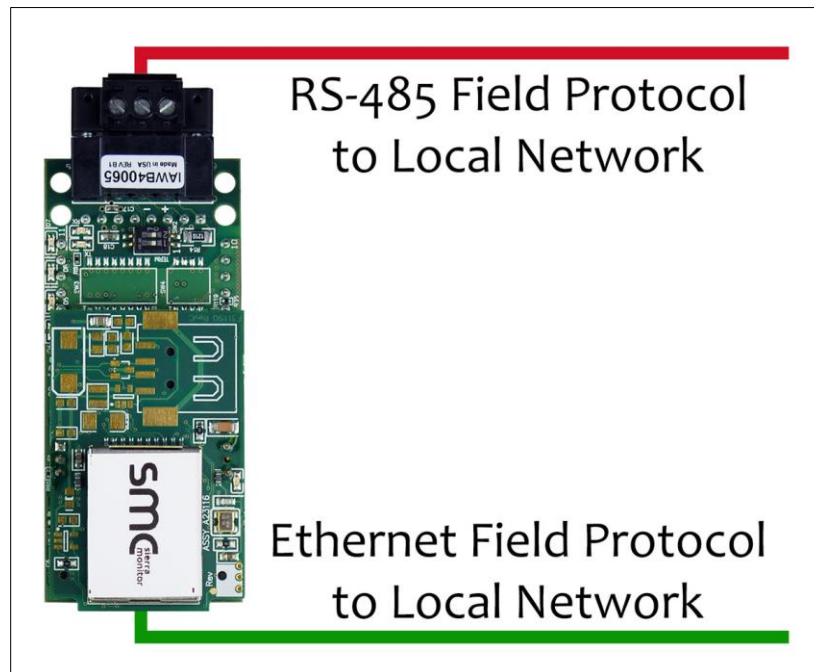
1 Introduction

1.1 ProtoCessor Gateway

The ProtoCessor is an embedded module that is designed into PLC Multipoint's product (hereafter simply called "device") and is preconfigured to support Modbus RTU, Modbus TCP/IP, BACnet MS/TP and BACnet/IP.

It is not necessary to download any configuration files to support the required applications. The ProtoCessor is pre-loaded with tested profiles/configurations for the supported device.

FPC-ED2 Connectivity Diagram:



The ProtoCessor can connect with the SMC Cloud. The SMC Cloud allows technicians, the OEM's support team and MSA Safety's support team to remotely connect to the ProtoCessor. The SMC Cloud provides the following capabilities for any registered devices in the field:

- Remotely monitor and control devices.
- Collect device data and view it on the SMC Cloud Dashboard and the SMC Smart Phone App.
- Create user defined device notifications (alarm, trouble and warning) via SMS and/or Email.
- Generate diagnostic captures (as needed for troubleshooting) without going to the site.

For more information about the SMC Cloud, refer to the [SMC Cloud Start-up Guide](#).

2 Setup for ProtoCessor

2.1 Record Identification Data

Each ProtoCessor has a unique part number located on the side or the back of the unit. This number should be recorded, as it may be required for technical support. The numbers are as follows:

Model	Part Number
ProtoCessor	FPC-ED2-1836
Figure 1: ProtoCessor Part Numbers	

- FPC-ED2 units have the following 2 ports: RS-485 + Ethernet

2.2 Configuring Device Communications

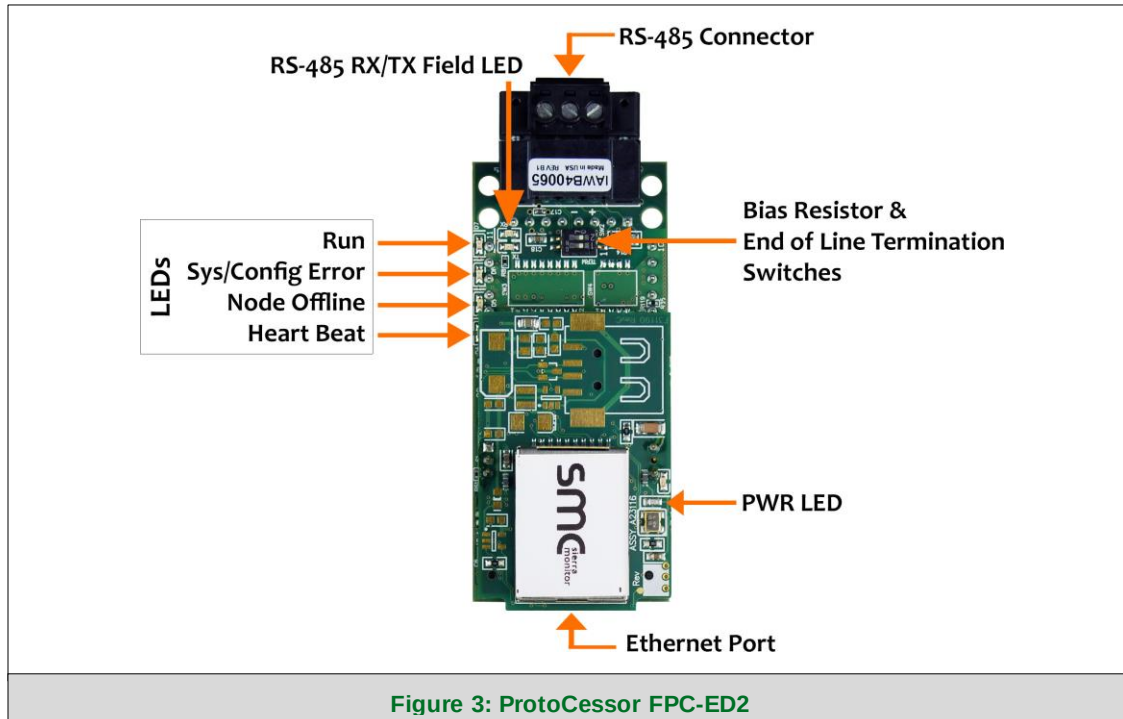
2.2.1 Confirm the Device and ProtoCessor COM Settings Match

- Any connected serial device **MUST** have the same baud rate, data bits, stop bits, and parity settings as the ProtoCessor.
- Figure 2** specifies the device serial port settings required to communicate with the ProtoCessor.

Port Setting	Device
Protocol	PSP
Baud Rate	38400
Parity	None
Data Bits	8
Stop Bits	1
Figure 2: COM Settings	

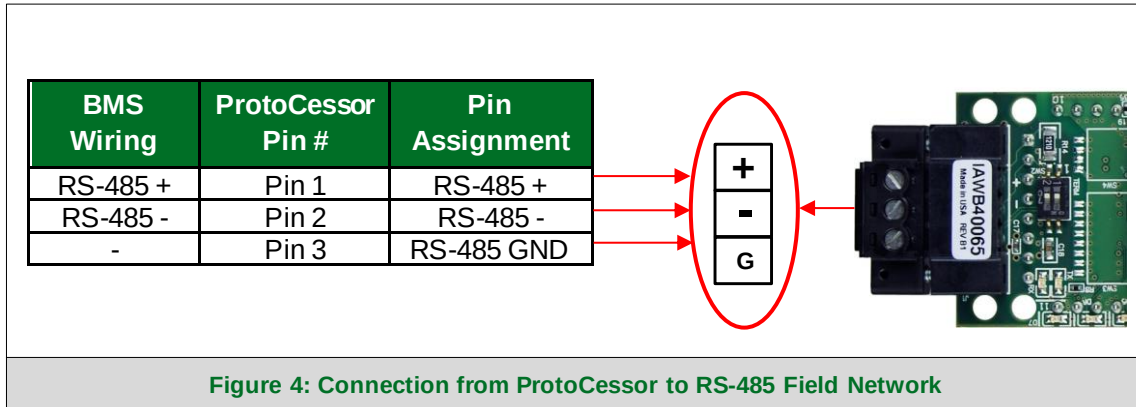
3 Interfacing ProtoCessor to Devices

3.1 ProtoCessor FPC-ED2 Showing Connection Ports

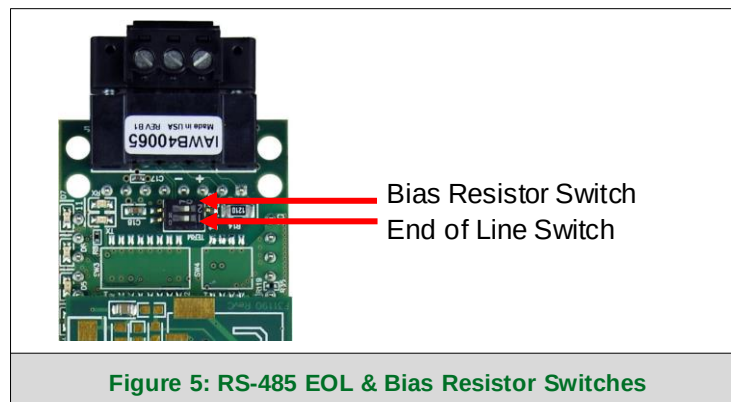


3.2 Serial Network: Wiring Field Port to RS-485 Network

- Connect the RS-485 network wires to the 3-pin RS-485 connector on the ProtoCessor as shown below in **Figure 4**.
 - Use standard grounding principles for RS-485 GND
- See **Section 6.3** for information on connecting to an Ethernet network.



- If the ProtoCessor is the last device on the trunk, then the end of line (EOL) termination switch needs to be enabled. See **(Figure 5)** for the orientation of switch positions referenced below.
 - The default setting from the factory is OFF (switch position = right side)
 - To enable the EOL termination, turn the EOL switch ON (switch position = left side)



- If more than one RS-485 device is connected to the network, then the field bias resistor switch needs to be enabled to ensure proper communication. See **Figure 5** for the orientation of switch positions referenced below.
 - The default factory setting is OFF (switch position = right side)
 - To enable biasing, turn the bias switch ON (switch position = left side)

NOTE: Biasing only needs to be enabled on one device. The ProtoCessor has 510 ohm resistors that are used to set the biasing.

4 Connect the PC to the ProtoCessor

4.1 Connecting to the Gateway via Ethernet

Connect a Cat-5 Ethernet cable (straight through or cross-over) between the local PC and ProtoCessor.

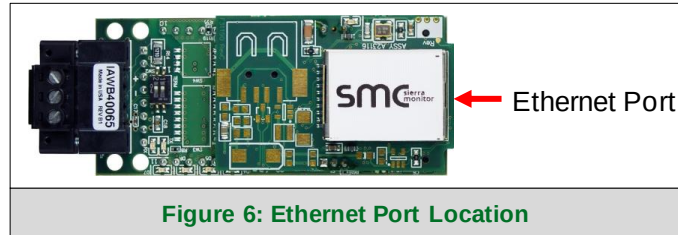


Figure 6: Ethernet Port Location

4.1.1 Changing the Subnet of the Connected PC

The default IP Address for the ProtoCessor is **192.168.1.24**, Subnet Mask is **255.255.255.0**. If the PC and ProtoCessor are on different IP networks, assign a static IP Address to the PC on the 192.168.2.xxx network.

For Windows 10:

- Find the search field in the local computer's taskbar (usually to the right of the windows icon ) and type in "Control Panel".
- Click "Control Panel", click "Network and Internet" and then click "Network and Sharing Center".
- Click "Change adapter settings" on the left side of the window.
- Right-click on "Local Area Connection" and select "Properties" from the dropdown menu.
- Highlight ☒  **Internet Protocol Version 4 (TCP/IPv4)** and then click the Properties button.
- Select and enter a static IP Address on the same subnet. For example:

☒ Use the following IP address:

IP address:	192 . 168 . 1 . 11
Subnet mask:	255 . 255 . 255 . 0
Default gateway:	. . .

- Click the Okay button to close the Internet Protocol window and the Close button to close the Ethernet Properties window.

5 Setup Web Server Security

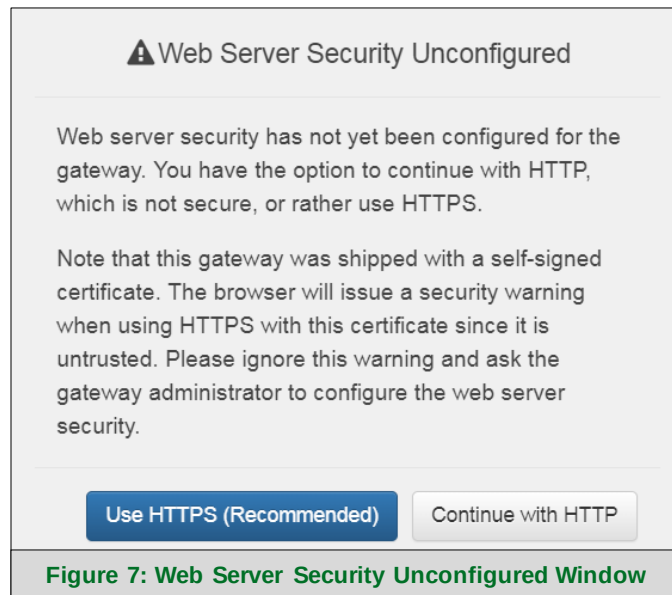
Navigate to the IP Address of the ProtoCessor on the local PC by opening a web browser and entering the IP Address of the ProtoCessor; the default Ethernet address is 192.168.1.24.

NOTE: If the IP Address of the ProtoCessor has been changed, the assigned IP Address can be discovered using the FS Toolbox utility. See Section 8.1 for instructions.

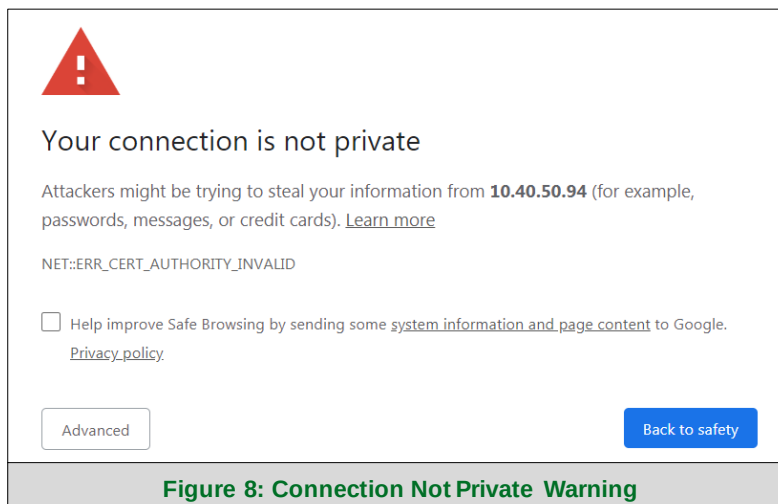
5.1 Login to the FieldServer

The first time the FieldServer GUI is opened in a browser, the IP Address for the gateway will appear as untrusted. This will cause the following pop-up windows to appear.

- When the Web Server Security Unconfigured window appears, read the text and choose whether to move forward with HTTPS or HTTP.

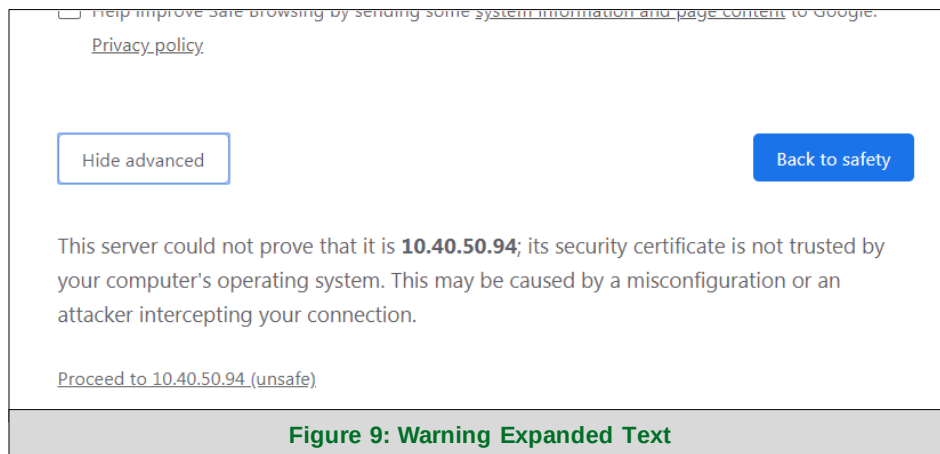


- When the warning that "Your connection is not private" appears, click the advanced button on the bottom left corner of the screen.



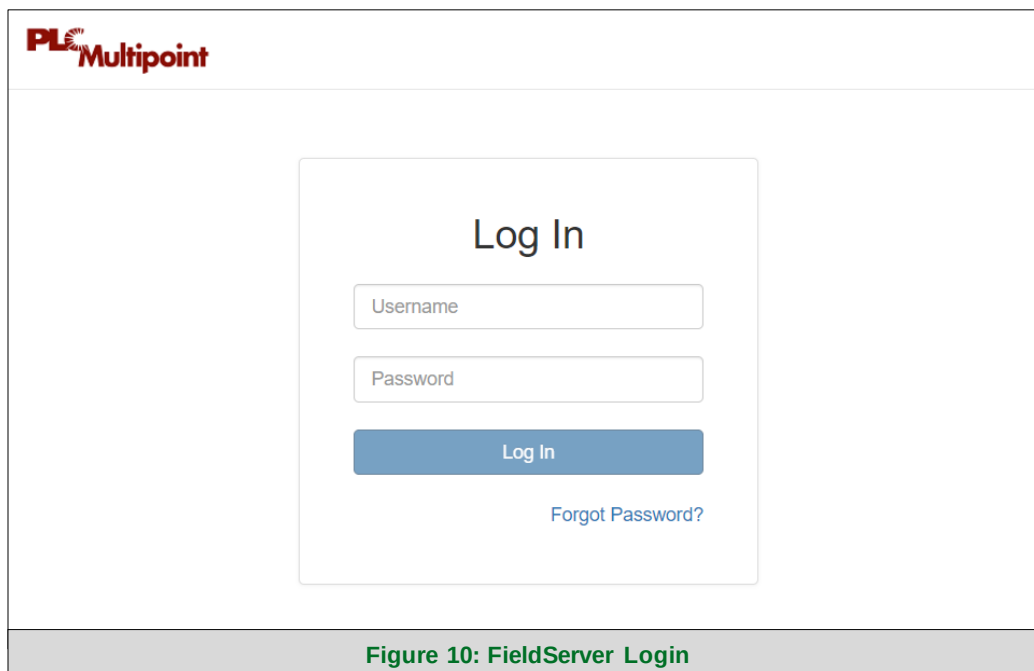
Setup Web Server Security

- Additional text will expand below the warning, click the underlined text to go to the IP Address. In the **Figure 9** example this text is “[Proceed to 10.40.50.94 \(unsafe\)](#)”.



- When the login screen appears, put in the Username (default is “admin”) and the Password (found on the label of the FieldServer).

NOTE: There is also a QR code in the top right corner of the FieldServer label that shows the default unique password when scanned.

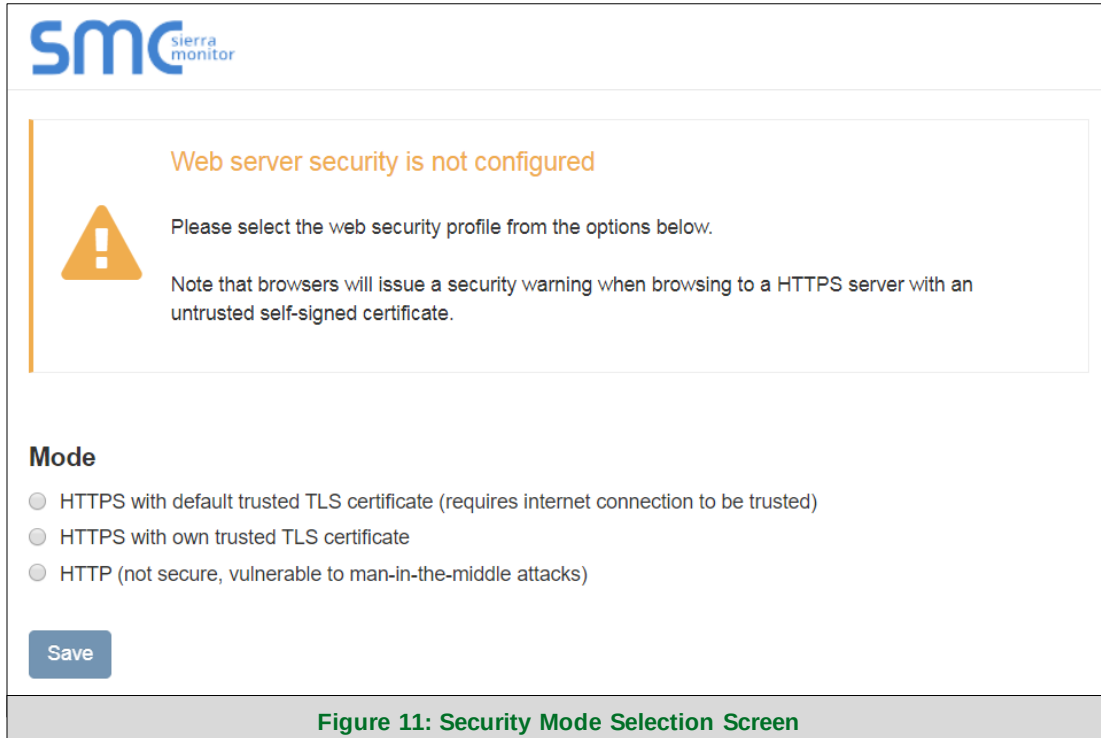


NOTE: A user has 5 attempts to login then there will be a 10-minute lockout. There is no timeout on the FieldServer to enter a password.

NOTE: To create individual user logins, go to Section 9.6.

5.2 Select the Security Mode

On the first login to the FieldServer, the following screen will appear that allows the user to select which mode the FieldServer should use.



The screenshot shows the Sierra Monitor web interface. At the top left is the 'smc sierra monitor' logo. Below it, a warning message is displayed in an orange-bordered box: 'Web server security is not configured' in orange text, followed by 'Please select the web security profile from the options below.' and 'Note that browsers will issue a security warning when browsing to a HTTPS server with an untrusted self-signed certificate.' To the left of this text is an orange triangle icon with a white exclamation mark. Below the warning box, the section is titled 'Mode' in bold. Underneath, there are three radio button options: 'HTTPS with default trusted TLS certificate (requires internet connection to be trusted)', 'HTTPS with own trusted TLS certificate', and 'HTTP (not secure, vulnerable to man-in-the-middle attacks)'. At the bottom left of the form is a blue 'Save' button. The entire interface is enclosed in a light gray border.

Figure 11: Security Mode Selection Screen

NOTE: Cookies are used for authentication.

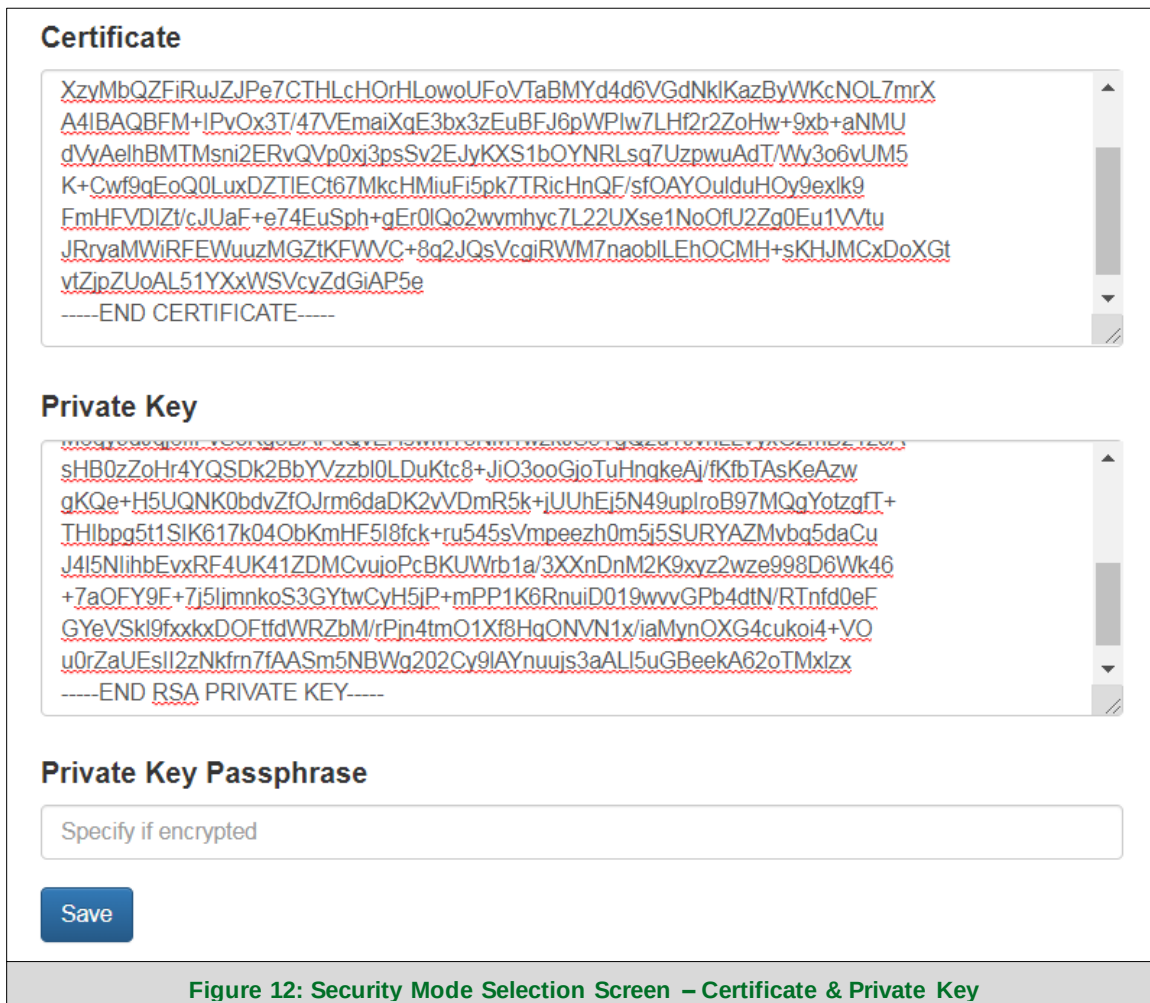
NOTE: To change the web server security mode after initial setup, go to Section 9.1.

The sections that follow include instructions for assigning the different security modes.

5.2.1 HTTPS with Own Trusted TLS Certificate

This is the recommended selection and the most secure. **Please contact your IT department to find out if you can obtain a TLS certificate from your company before proceeding with the Own Trusted TLS Certificate option.**

- Once this option is selected, the Certificate, Private Key and Private Key Passphrase fields will appear under the mode selection.



The screenshot shows a web interface for setting up web server security. It has three main sections: 'Certificate', 'Private Key', and 'Private Key Passphrase'. The 'Certificate' section contains a text area with a long string of base64-encoded text, followed by '-----END CERTIFICATE-----'. The 'Private Key' section contains a text area with a long string of base64-encoded text, followed by '-----END RSA PRIVATE KEY-----'. The 'Private Key Passphrase' section has a text input field with the placeholder 'Specify if encrypted' and a 'Save' button below it. At the bottom of the form, there is a caption: 'Figure 12: Security Mode Selection Screen – Certificate & Private Key'.

Certificate

```
XzyMbQZFIRuJJPe7CTHLCOrHLowoUFoVTaBMYd4d6VGdNklKazByWKcNOL7mrX
A4IBABQBFM+IPvOx3T/47VEmaiXqE3bx3zEuBFJ6pWPlw7LHf2r2ZoHw+9xb+aNMU
dVyAelhBMTMsnI2ERvQVp0xj3psSv2EJyKXS1bOYNRLsq7UzpwuAdT/Wy3o6vUM5
K+Cwf9qEoQ0LuxDZTIECt67MkcHMiuFi5pk7TRicHnQF/sfOAYOulduHOy9exlk9
FmHFVDIZt/cJUaF+e74EuSph+gErOIQo2wvmhyc7L22UXse1NoOfU2Zg0Eu1VVtu
JRryaMWIRFEWuuZMGZtKFWWC+8q2JQsVcgrRWM7naoblEhOCMH+sKHJMCxDoXGt
vtZjpZUoAL51YXxWSVcyZdGiAP5e
-----END CERTIFICATE-----
```

Private Key

```
sHB0zZoHr4YQSDk2BbYVzzbl0LDuKtc8+JiO3ooGjoTuHngkeAj/fKfbTAsKeAzw
gKQe+H5UQNK0bdvZfOJrm6daDK2vDmR5k+iUUhEj5N49uplroB97MQgYotzgT+
THlbgg5t1SIK617k04ObKmHF5l8fck+ru545sVmpeeZh0m5j5SURYAZMvbq5daCu
J4l5NlIhbEvxRF4UK41ZDMCvujOPcBKUWrb1a/3XXnDnM2K9xyz2wze998D6Wk46
+7aOFY9F+7i5ljmnkoS3GYtwCyH5iP+mPP1K6RnuiD019wvGPb4dtN/RTnfd0eF
GYeVSkI9fxkxDOftfdWRZbM/rPjn4tmO1Xf8HqONVN1x/iaMynOXG4cukoi4+VO
u0rZaUEsI12zNkfrn7fAASm5NBWq202Cy9IAYnuujs3aALi5uGBeekA62oTMxlzx
-----END RSA PRIVATE KEY-----
```

Private Key Passphrase

Specify if encrypted

Save

Figure 12: Security Mode Selection Screen – Certificate & Private Key

- Copy and paste the Certificate and Private Key text into their respective fields. If the Private Key is encrypted type in the associated Passphrase.
- Click Save.
- A “Redirecting” message will appear. After a short time, the FieldServer GUI will open.

5.2.2 HTTPS with Default Untrusted Self-Signed TLS Certificate or HTTP with Built-in Payload Encryption

- Select one of these options and click the Save button.
- A “Redirecting” message will appear. After a short time, the FieldServer GUI will open.

6 Configure the ProtoCessor

6.1 Select Field Protocol and Set Configuration Parameters

- On the Web Configurator page, the first configuration parameter is the Protocol Selector.

The screenshot shows the 'Configuration Parameters' section of the PLC Multipoint Web Configurator. It contains a table with three rows of configuration parameters. Each row has a 'Parameter Name', a 'Parameter Description', and a 'Value' field with a 'Submit' button.

Parameter Name	Parameter Description	Value
protocol_select	Protocol Selector Set to 1 for BACnet IP Set to 2 for BACnet MSTP Set to 3 for Modbus TCP/Modbus RTU	1 Submit
network_nr	BACnet Network Number This sets the BACnet network number of the Gateway. (1 - 65535)	50001 Submit
rte_net_num	BACnet Router Network Number This sets the BACnet router network number. Needs to be	50002 Submit

At the bottom of the configuration area, there are four buttons: 'HELP (?)', 'Network Settings', 'System Restart', and 'Diagnostics & Debugging'. The 'Powered by FieldServer' logo is visible in the bottom right corner.

Figure 13: Web Configurator Protocol Selector Parameter

- Select the field protocol by entering the appropriate number into the Protocol Selector Value. Click the Submit button. Click the System Restart button to save the updated configuration.

NOTE: Protocol specific parameters are only visible when the associated protocol is selected.

- Ensure that all parameters are entered for successful operation of the gateway. Find the legal value options for each parameter under the Parameter Description in parentheses.

6.2 Verify Device Communications

- Check that TX and RX LEDs are rapidly flashing. See **Section 8.4** for more information.
- Confirm the software shows communication without errors. (**Section 8.2**)

6.3 Ethernet Network: Setting IP Address for Field Network

- To access the FS-GUI, click on the “Diagnostics & Debugging” button in the bottom right side of the page.



Configuration Parameters

Parameter Name	Parameter Description	Value
protocol_select	Protocol Selector Set to 1 for BACnet IP Set to 2 for BACnet MSTP Set to 3 for Modbus TCP/Modbus RTU	1 Submit
network_nr	BACnet Network Number This sets the BACnet network number of the Gateway. <i>(1 - 65535)</i>	50001 Submit
rte_net_num	BACnet Router Network Number This sets the BACnet router network number. Needs to be unique across the BACnet network. <i>(1 - 65534)</i>	50002 Submit
int_net_num	BACnet Internal Network Number This is used for internal BACnet traffic. Needs to be unique across the BACnet network. <i>(1 - 65534)</i>	50003 Submit
bac_device_id	BACnet Device Instance This sets the BACnet device instance. <i>(1 - 4194303)</i>	50011 Submit
bac_ip_port	BACnet IP Port This sets the BACnet IP port of the Gateway. The default is 47808. <i>(1 - 65535)</i>	47808 Submit
bac_cov_option	BACnet COV This enables or disables COVs for the BACnet connection. Use COV_Enable to enable. Use COV_Disable to disable. <i>(COV_Enable/COV_Disable)</i>	COV_Disable Submit
bac_bbmd_option	BACnet BBMD This enables BBMD on the BACnet IP connection. Use BBMD to enable. Use - to disable. The bdt.ini files also needs to be downloaded. <i>(BBMD/-)</i>	- Submit

HELP (?)

Network Settings

System Restart

Diagnostics & Debugging

Powered by
FieldServer

Figure 14: Web Configurator Screen

- From the FS-GUI landing page, click on “Setup” to expand the navigation tree and then select “Network Settings” to access the IP Settings menu. (Figure 15)

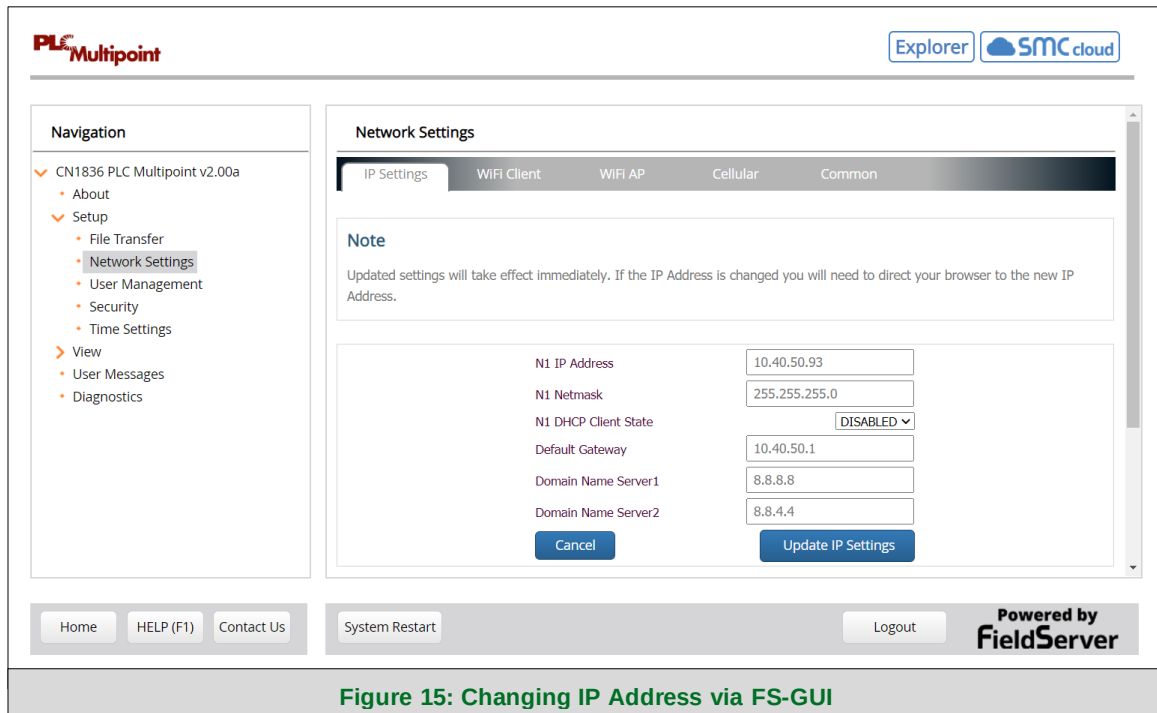


Figure 15: Changing IP Address via FS-GUI

- Modify the IP Address (N1 IP Address field) of the ProtoCessor Ethernet port.
- If necessary, change the Netmask (N1 Netmask field).
- If necessary, change the IP Gateway (Default Gateway field).

NOTE: If the ProtoCessor is connected to a managed switch/router, the IP Gateway of the ProtoCessor should be set to the IP Address of that managed switch/router.

- Click the “System Restart” button at the bottom of the page to apply changes and restart the ProtoCessor.
- Unplug Ethernet cable from PC and connect it to the network switch or router.
- Record the IP Address assigned to the ProtoCessor for future reference.

NOTE: The SMC Cloud button  (see Figure 15) allows users to connect to the SMC Cloud, Sierra Monitor’s device cloud solution for IIoT. The SMC Cloud enables secure remote connection to field devices through a FieldServer and its local applications for configuration, management, maintenance. For more information about the SMC Cloud, refer to the [SMC Cloud Start-up Guide](#).

7 Using the Embedded BACnet Explorer

The embedded BACnet Explorer allows installers of the OEM product to validate that their equipment is working on BACnet without having to ask the BMS integrator to test the unit.

- To access the embedded BACnet Explorer, go to the FS-GUI page and click the Explorer button.

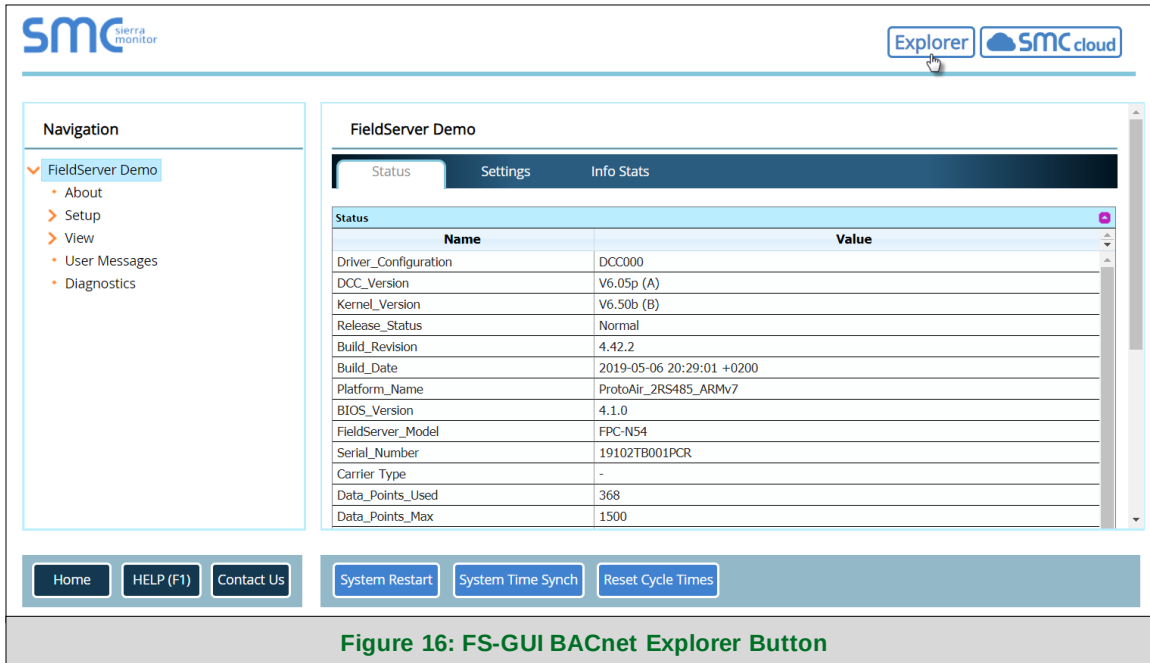


Figure 16: FS-GUI BACnet Explorer Button

NOTE: For BACnet/IP, click on the Settings button on the left side of the landing page to ensure the FieldServer is on the BACnet/IP network subnet or to configure BBMD.

7.1 Discover Device List

- From the BACnet Explorer landing page, click on the BACnet Explorer button on the left side of the screen to go to the BACnet Explorer page.

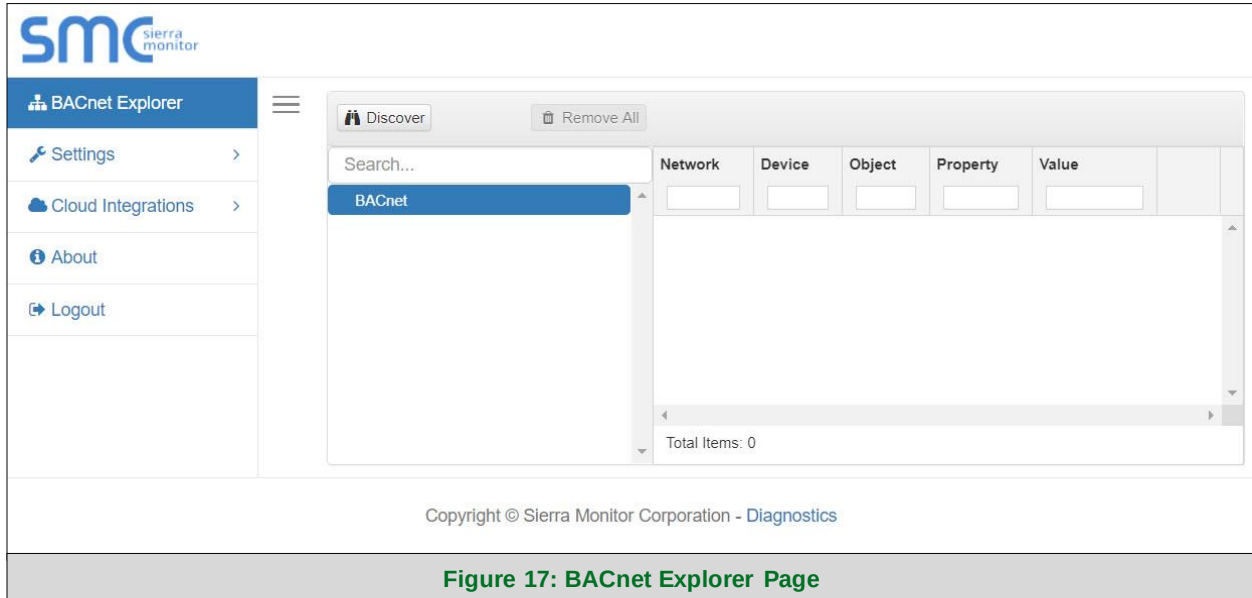


Figure 17: BACnet Explorer Page

- To discover the devices connected to the same subnet as the BACnet Explorer, click the Discover button  (binocular icon).
- This will open the Discover window, click the checkboxes next to the desired search settings and click Discover to start the search.

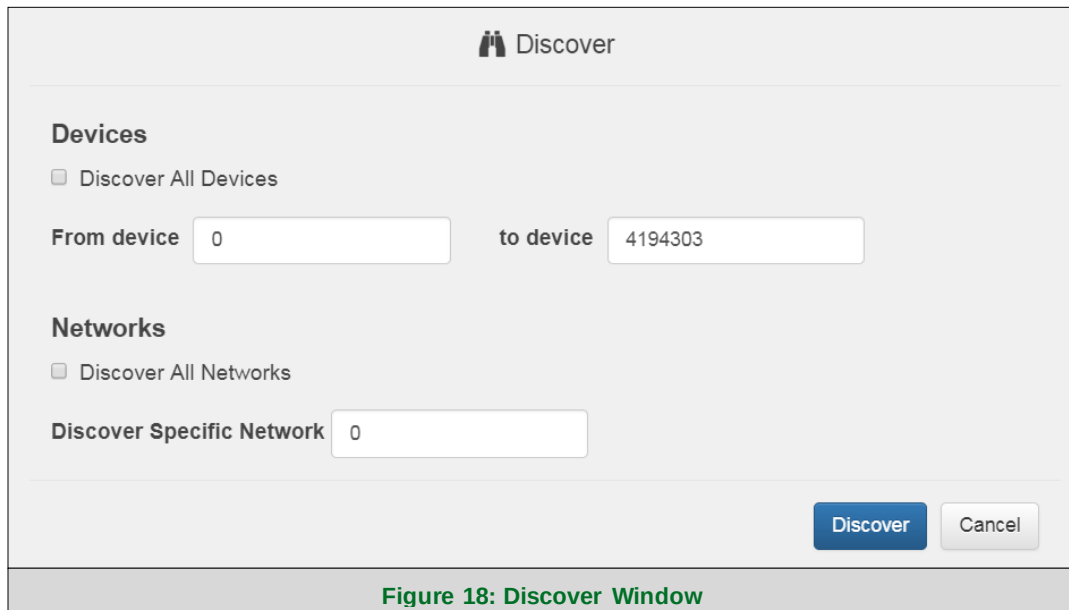


Figure 18: Discover Window

NOTE: The “Discover All Devices” or “Discover All Networks” checkboxes must be unchecked to search for a specific device range or network.

NOTE: Allow the devices to populate before interacting with the device list for optimal performance. Any discovery or explore process will cause a green message to appear in the upper right corner of the browser to confirm that the action is complete.

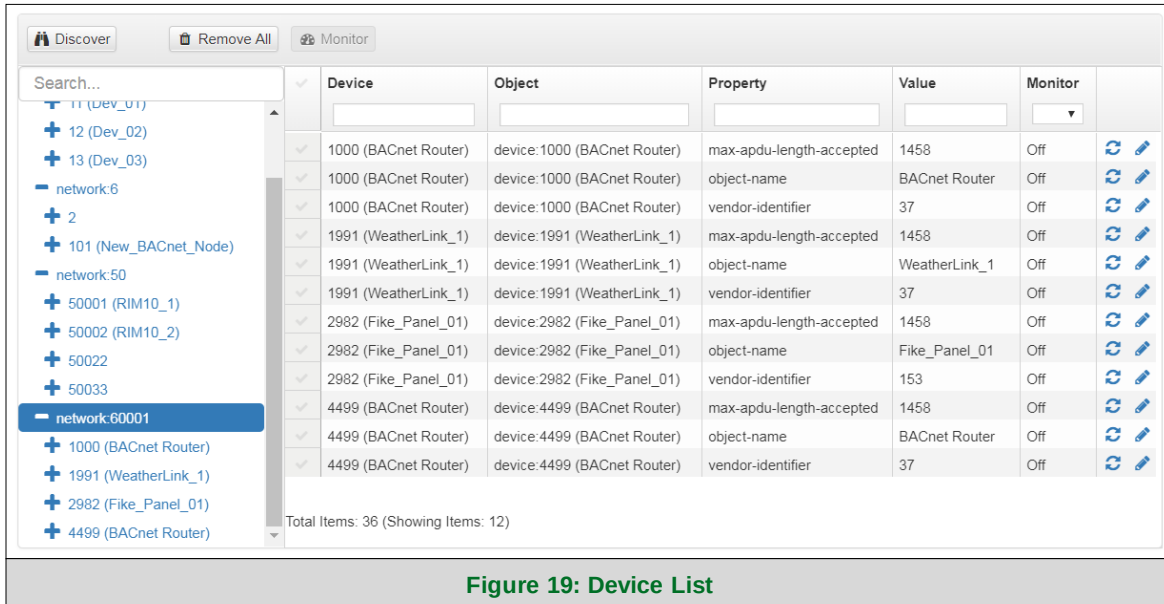


Figure 19: Device List

7.2 View Device Details and Explore Points/Parameters

- To view the device details, click the blue plus sign (+) next to the desired device in the list.
 - This will show only some of the device properties for the selected aspect of a device

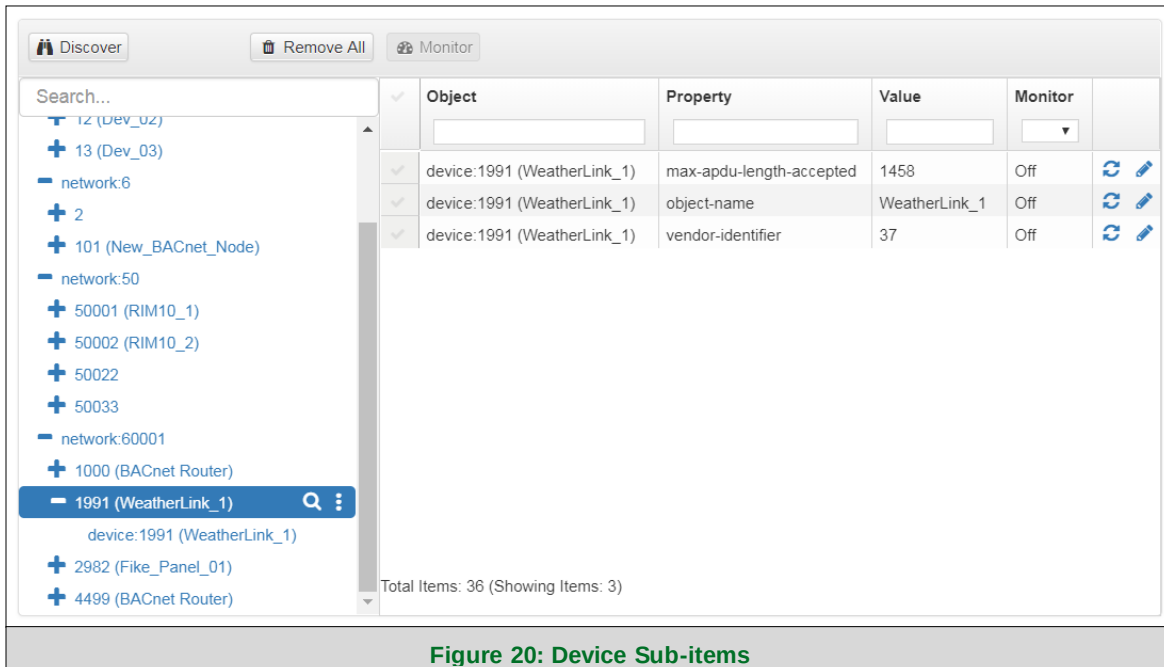


Figure 20: Device Sub-items

Configuring the Gateway

- To view the full details of a device, highlighting the device directly (in **Figure 21** “1991 WeatherLink_1”) and click the Explore button (🔍) that appears to the right of the highlighted device as a magnifying glass icon or double-click the highlighted device.

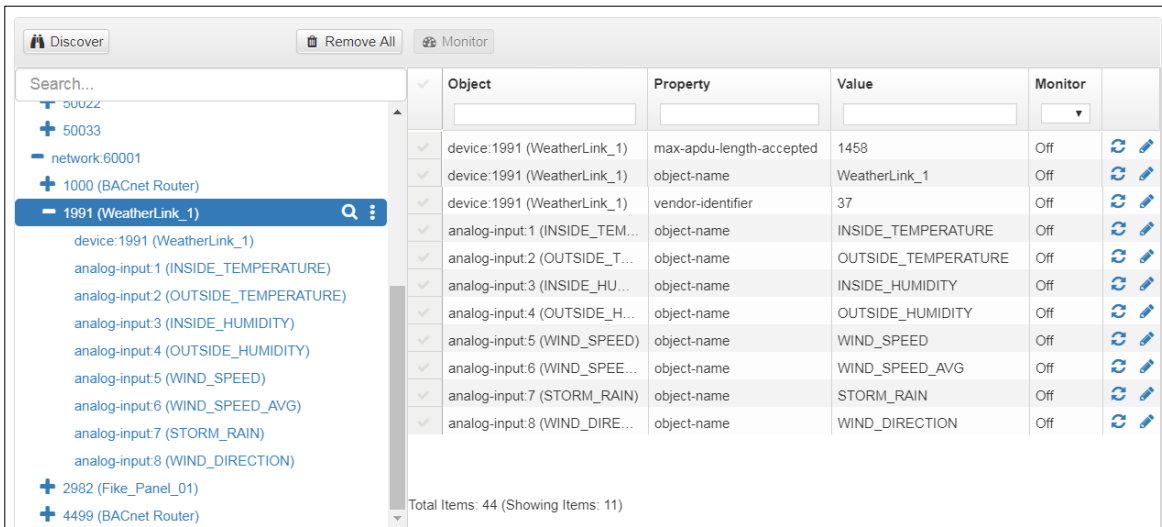


Figure 21: Full Device Sub-items

- Now additional device details are viewable; however, the device can be explored even further
- Click on one of the device details.

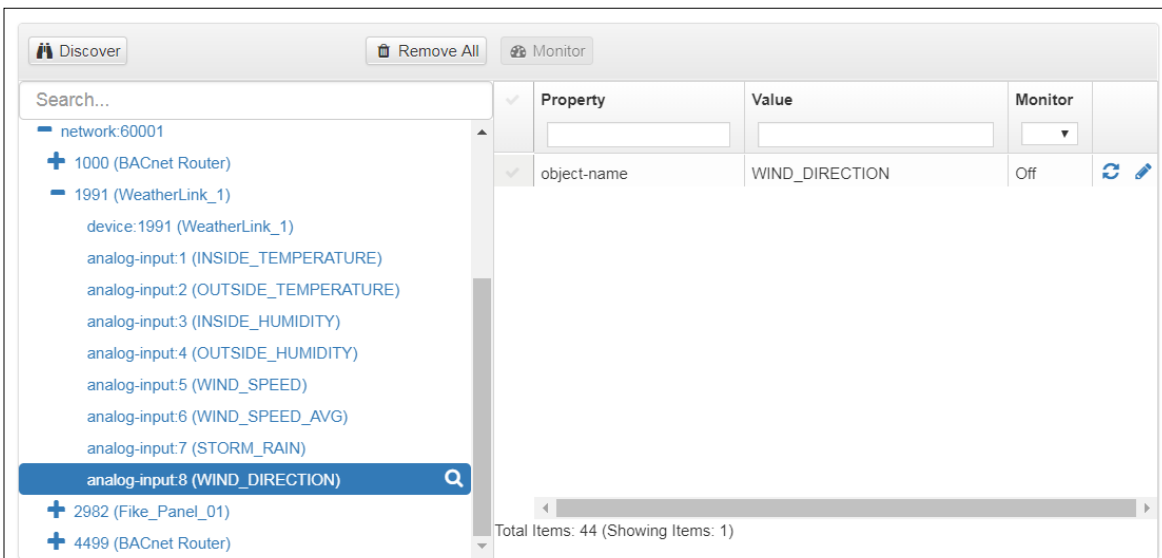


Figure 22: Simplified Device Details

- Then click on the Explore button or double-click the device object.

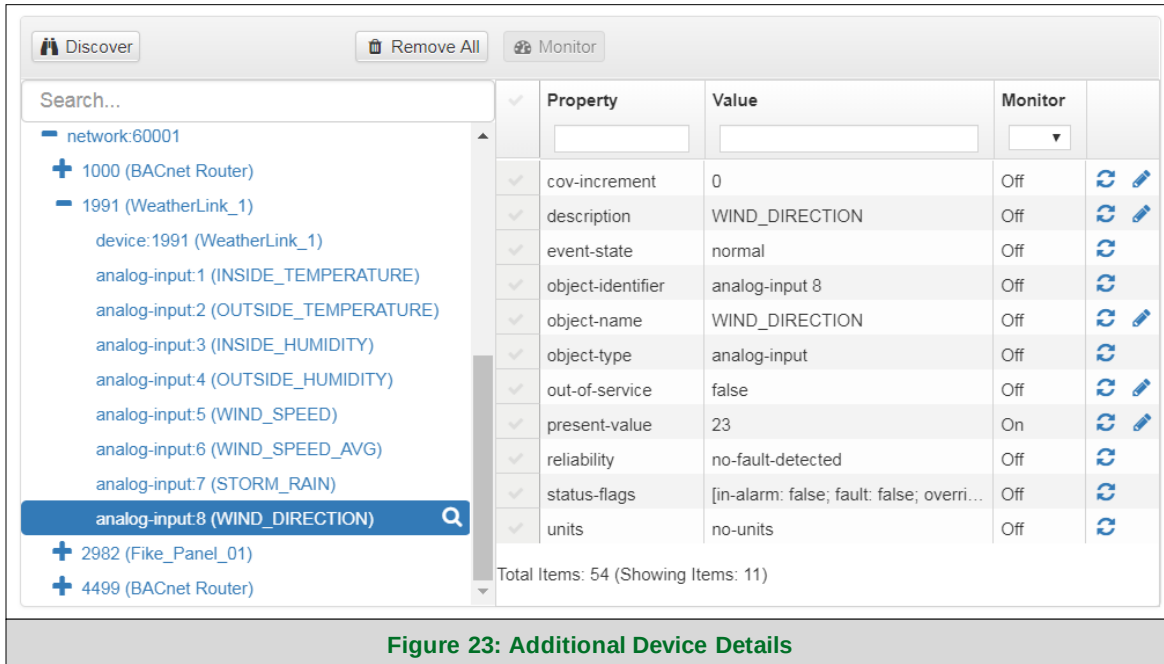


Figure 23: Additional Device Details

A full list of the device details will appear on the right side window. If changes are expected since the last explore, simply press the Refresh button (🔄) that appears to right of individual properties to refresh the value.

NOTE: The Explorer Search Bar will find devices based on their Device ID.

NOTE: The Explorer Discovery Tree has 3 levels that correspond to the following.

- Network number
 - Device
 - Device object

7.2.1 Edit the Present Value Field

The only recommended field to edit via BACnet Explorer is the device's present value field.

NOTE: Other BACnet properties are editable (such as object name, object description, etc.); however, this is not recommended because the BACnet Explorer is a discovery tool not a Building Management System (BMS).

- To edit the present value, select it in the property listings.

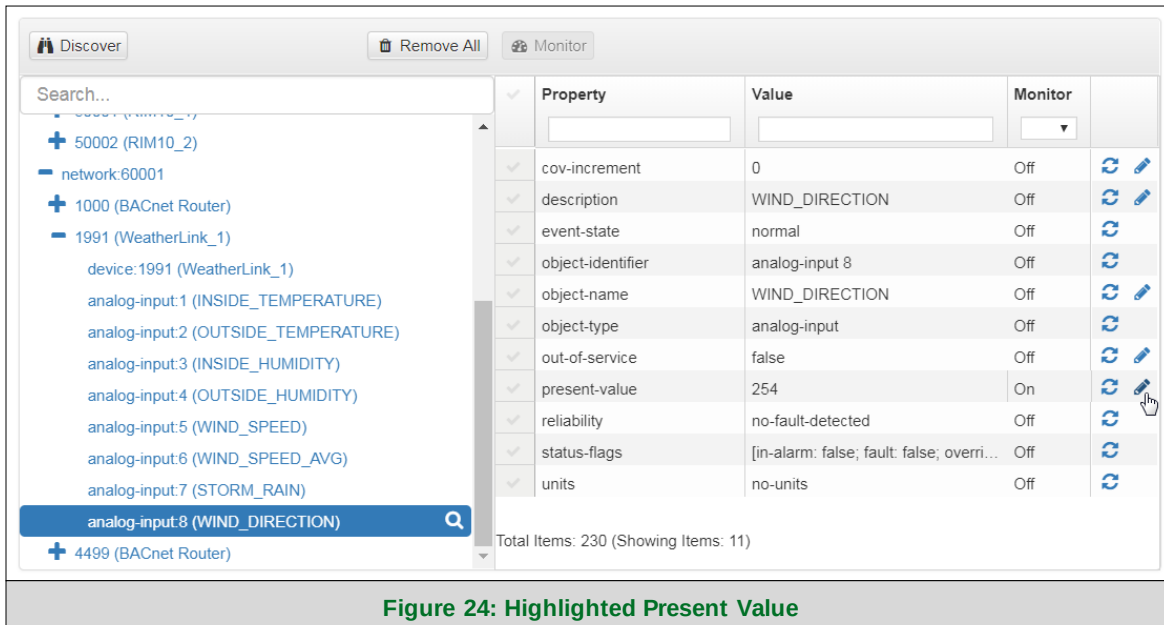


Figure 24: Highlighted Present Value

- Then click the Write button (✎) on the right of the property to bring up the Write Property window.

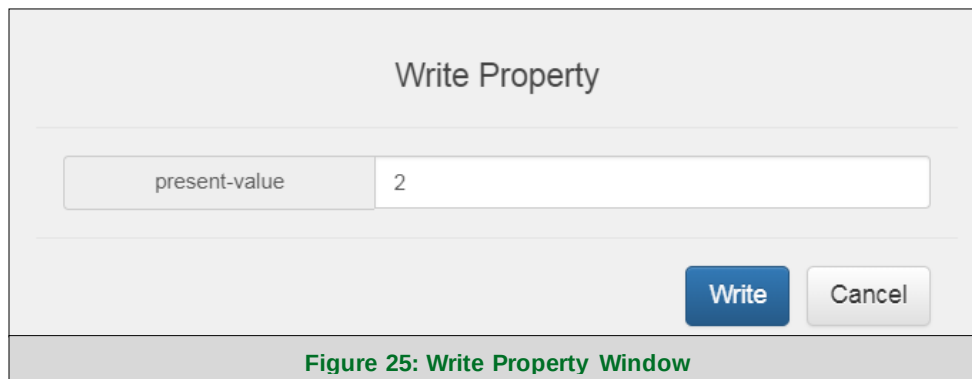


Figure 25: Write Property Window

- Enter the appropriate change and click the Write button.

The window will close. When the BACnet Explorer page appears, the present value will be changed as specified.

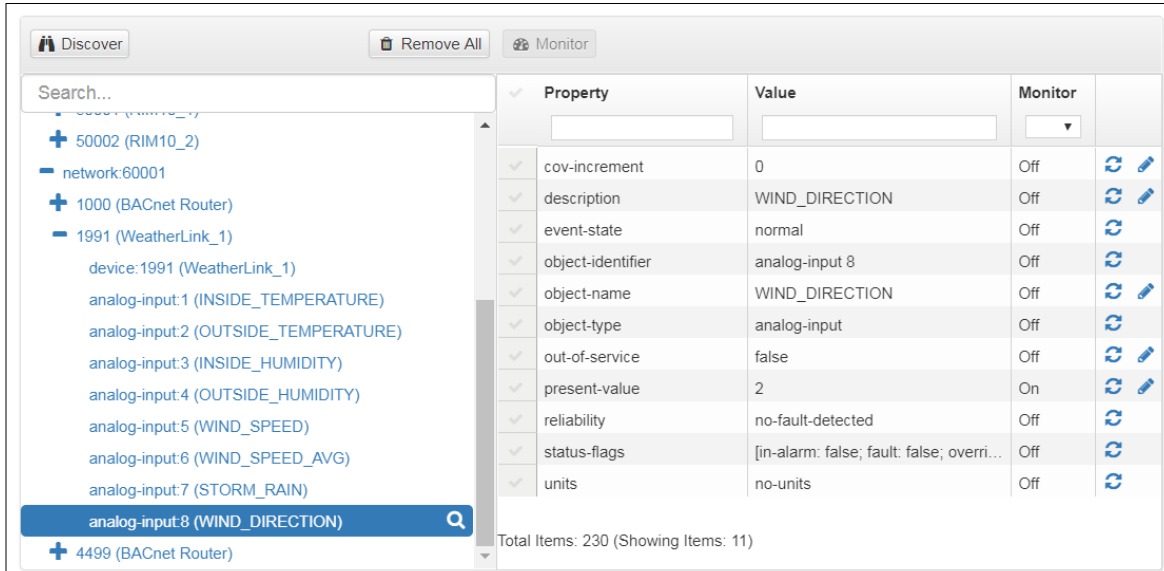
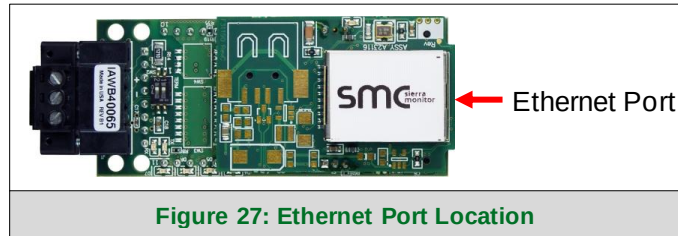


Figure 26: Updated Present Value

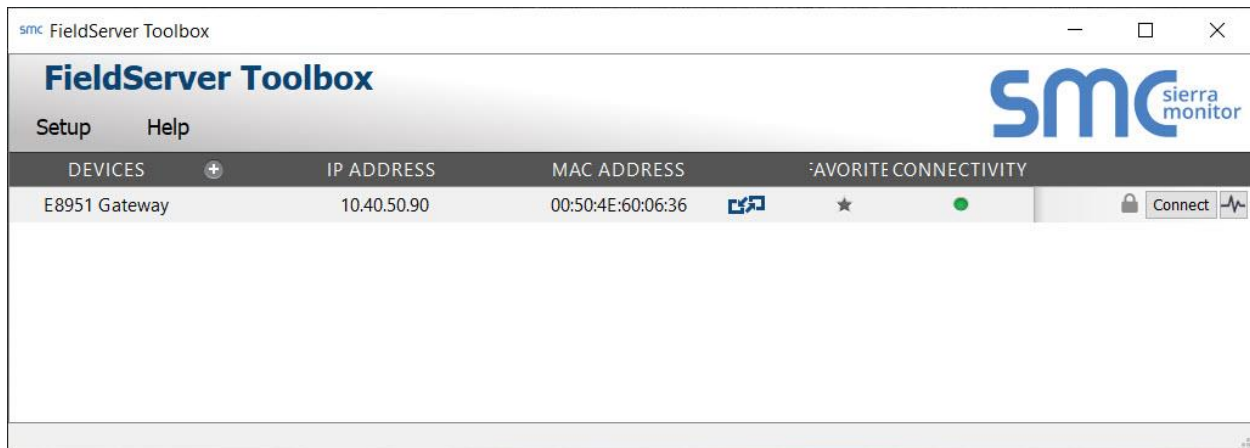
8 Troubleshooting

8.1 Lost or Incorrect IP Address

- Ensure that FieldServer Toolbox is loaded onto the local PC. Otherwise, download the FieldServer-Toolbox.zip via the MSA Safety website.
- Extract the executable file and complete the installation.



- Connect a standard Cat-5 Ethernet cable between the user's PC and ProtoCessor.
- Double click on the FS Toolbox Utility and click Discover Now on the splash page.
- Check for the IP Address of the desired gateway.



8.2 Viewing Diagnostic Information

- Type the IP Address of the ProtoCessor into the web browser or use the FieldServer Toolbox to connect to the ProtoCessor.
- Click on Diagnostics and Debugging Button, then click on view, and then on connections.
- If there are any errors showing on the Connection page, refer to **Section 8.3** for the relevant wiring and settings.

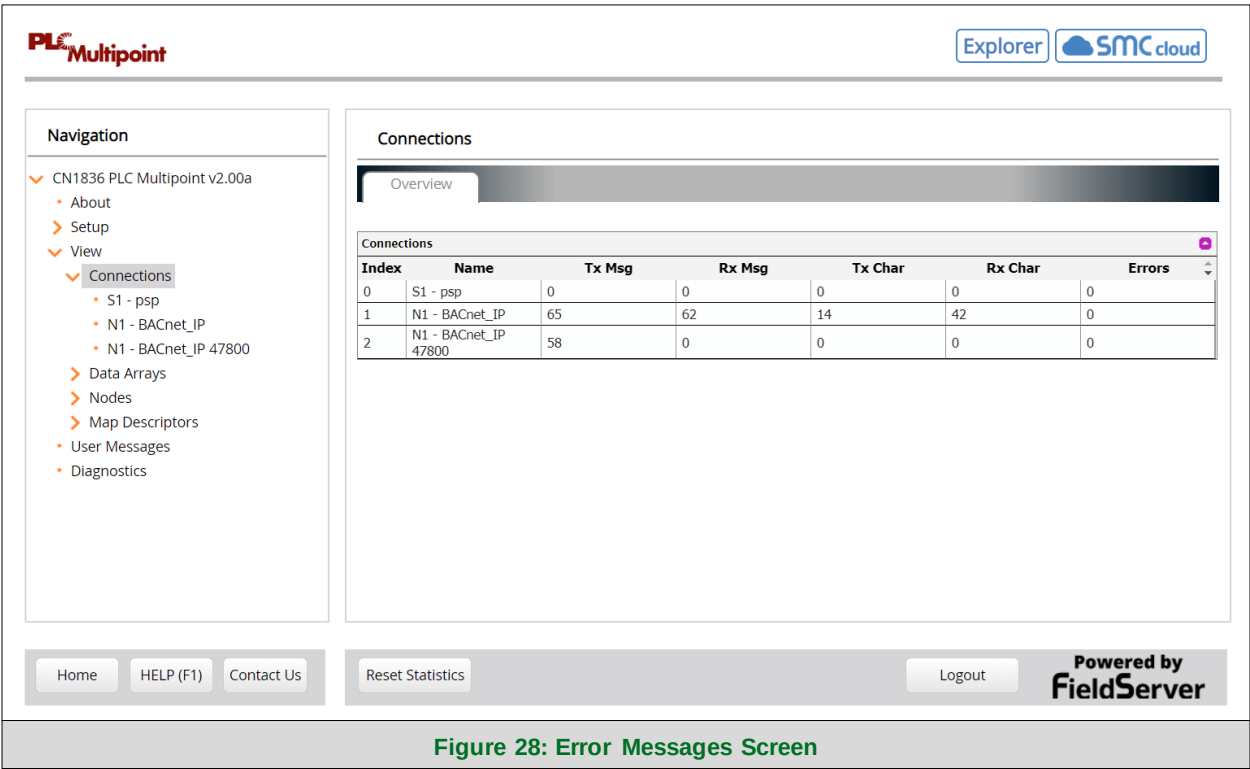


Figure 28: Error Messages Screen

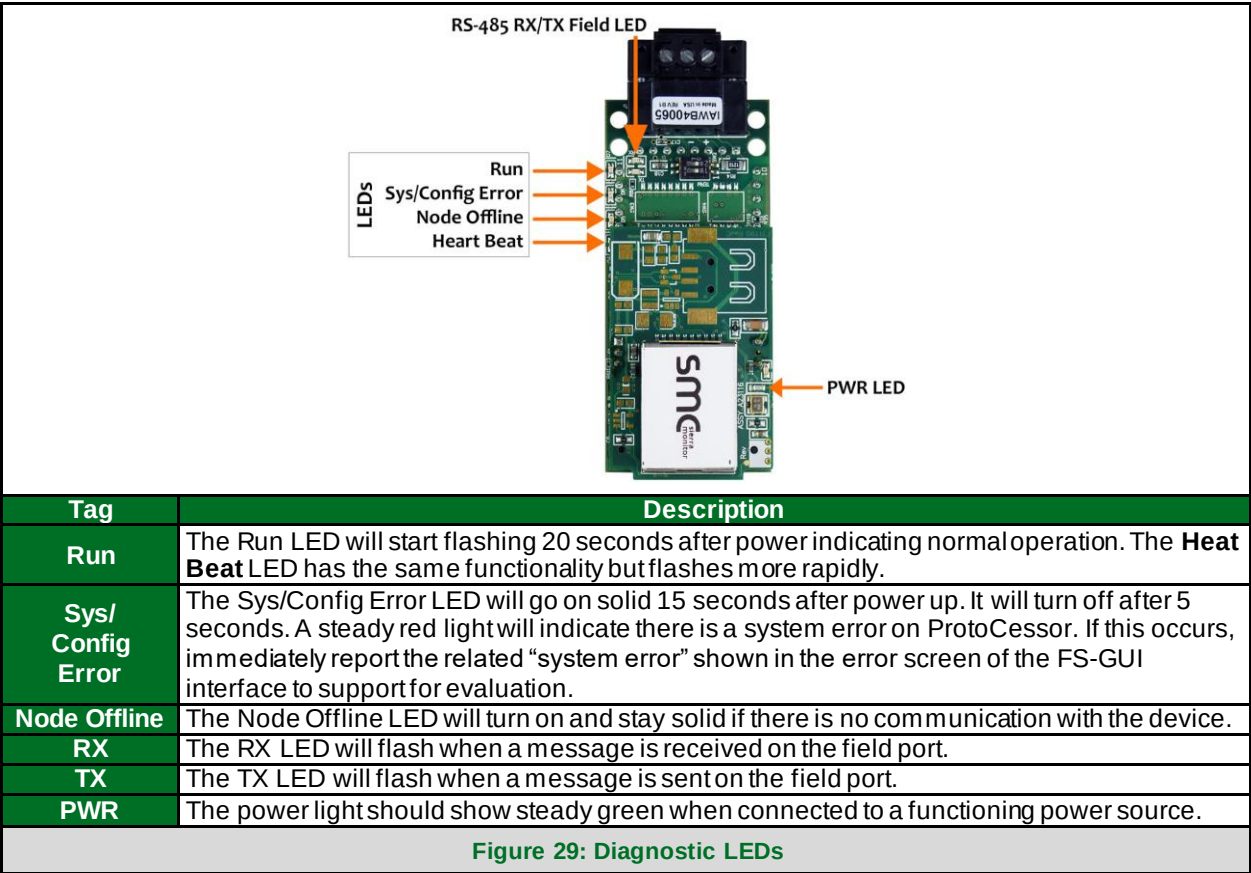
8.3 Checking Wiring and Settings

- No COMS on PSP side. If the Tx/Rx LEDs are not flashing rapidly then there is a COM issue. To fix this, check the following:
 - Visual observations of LEDs on ProtoCessor (**Section 8.4**)
 - Check baud rate, parity, data bits, stop bits
 - Check device address
 - Verify wiring
- Field COM problems:
 - Visual observations of LEDs on the ProtoCessor (**Section 8.4**)
 - Verify IP Address setting
 - Verify wiring

NOTE: If the problem persists, a Diagnostic Capture needs to be taken and sent to support. (**Section 8.5**)

8.4 LED Diagnostics for Communications Between ProtoCessor and Devices

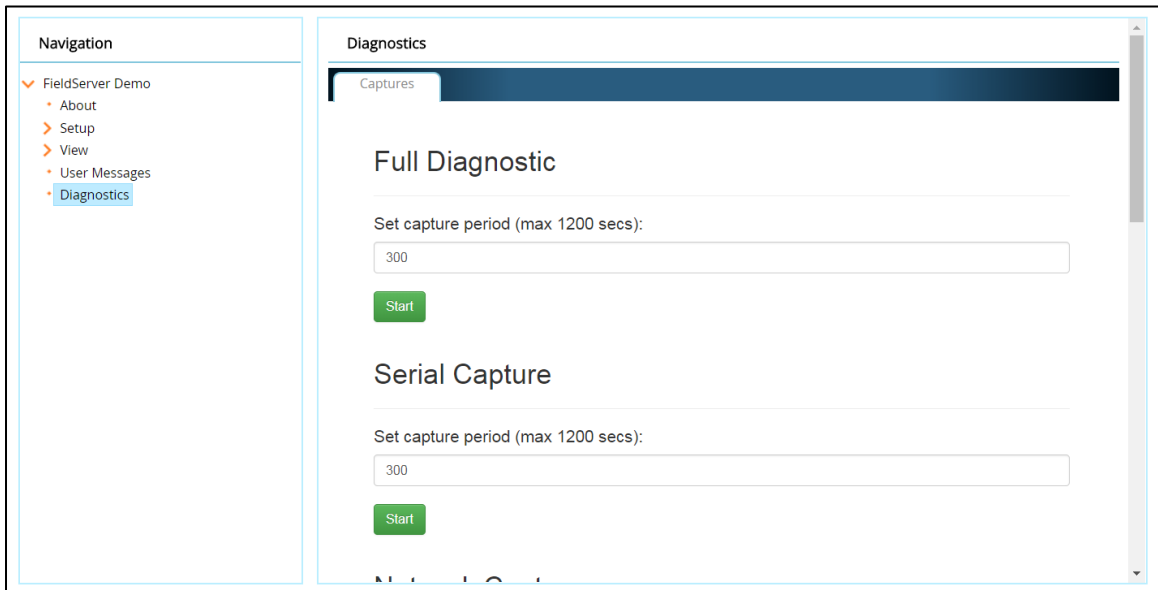
See the diagram below for ProtoCessor FPC-ED2 LED Locations.



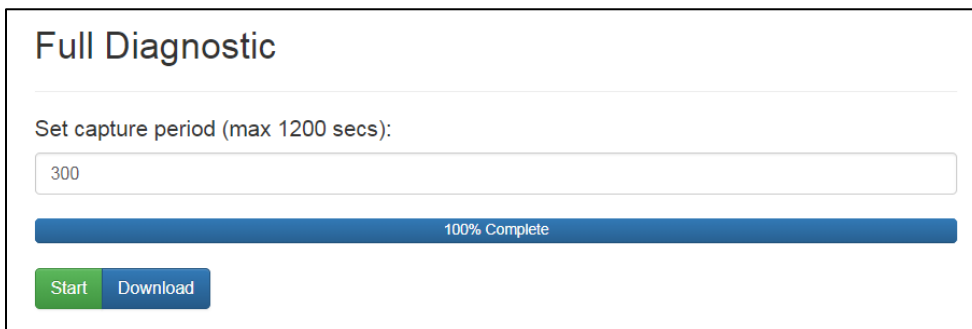
8.5 Taking a FieldServer Diagnostic Capture

When there is a problem on-site that cannot easily be resolved, perform a Diagnostic Capture before contacting support. Once the Diagnostic Capture is complete, email it to technical support. The Diagnostic Capture will accelerate diagnosis of the problem. If the FieldServer bios is updated/released on November 2017 or later then the Diagnostic Capture is performed via the gateway's on-board system.

- Access the FieldServer Diagnostics page via one of the following methods:
 - Open the FieldServer FS-GUI page and click on Diagnostics in the Navigation panel
 - Open the FieldServer Toolbox software and click the diagnose icon  of the desired device



- Go to Full Diagnostic and select the capture period.
- Click the Start button under the Full Diagnostic heading to start the capture.
 - When the capture period is finished, a Download button will appear next to the Start button



- Click Download for the capture to be downloaded to the local PC.
- Email the diagnostic zip file to technical support.

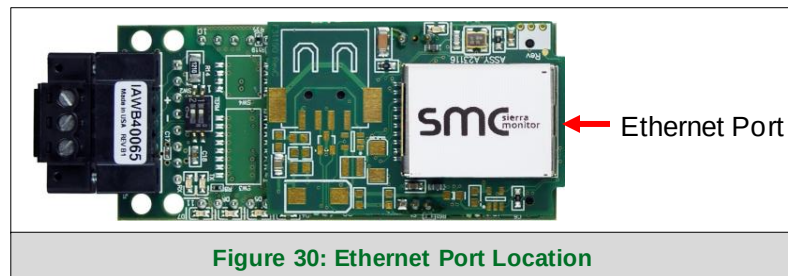
NOTE: Diagnostic captures of BACnet MS/TP communication are output in a “.PCAP” file extension which is compatible with Wireshark.

8.5.1 Taking a Capture with Older Firmware

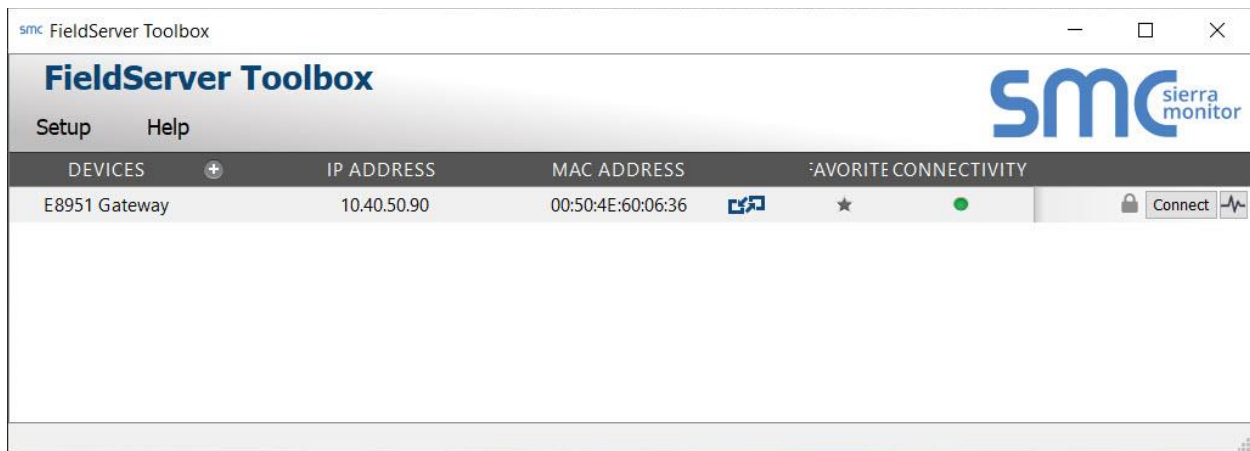
If the FieldServer firmware is from before November 2017, the Diagnostic Capture can be done by downloading the FieldServer Toolbox software but network connections (such as Ethernet and Wi-Fi) cannot be captured (if a network diagnostic is needed take a Wire Shark capture).

Once the Diagnostic Capture is complete, email it to technical support. The Diagnostic Capture will accelerate diagnosis of the problem.

- Ensure that FieldServer Toolbox is loaded onto the local PC. Otherwise, download the FieldServer-Toolbox.zip via the MSA Safety website.
- Extract the executable file and complete the installation.



- Connect a standard Cat-5 Ethernet cable between the PC and ProtoCessor.
- Double click on the FS Toolbox Utility.
- **Step 1:** Take a Log
 - Click on the diagnose icon  for the desired device



- Select “Full Diagnostic” from the drop down menu

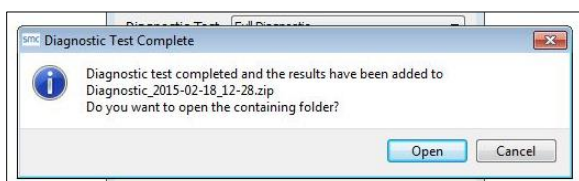


NOTE: If desired, the default capture period can be changed.

- Click on the Start Diagnostic button



- Wait for the capture period to finish and the Diagnostic Test Complete window will appear
- **Step 2: Send Log**
 - Once the diagnostic test is complete, a .zip file is saved on the PC



- Choose “Open” to launch explorer and have it point directly at the correct folder
- Send the Diagnostic zip file to technical support

 Diagnostic_2014-07-17_20-15.zip	2014/07/17 20:16	zip Archive	676 KB
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9 Additional Information

9.1 Update Firmware

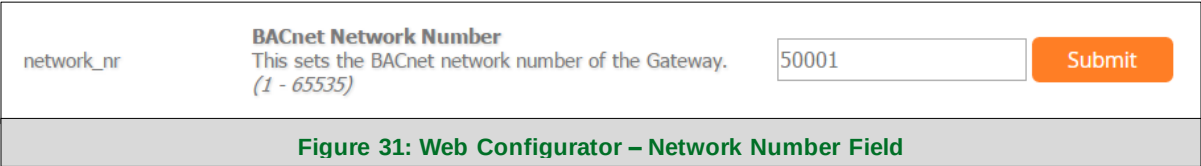
To load a new version of the firmware, follow these instructions:

- 1. Extract and save the new file onto the local PC.
- 2. Open a web browser and type the IP Address of the FieldServer in the address bar.
 - Default IP Address is 192.168.1.24
 - Use the FS Toolbox utility if the IP Address is unknown (**Section 8.1**)
- 3. Click on the “Diagnostics & Debugging” button.
- 4. In the Navigation Tree on the left hand side, do the following:
 - a. Click on “Setup”
 - b. Click on “File Transfer”
 - c. Click on the “Firmware” tab
- 5. In the Firmware tab, click on “Choose Files” and select the firmware file extracted in step 1.
- 6. Click on the orange “Submit” button.
- 7. When the download is complete, click on the “System Restart” button.

9.2 BACnet: Setting Network_Number for More Than One ProtoCessor on the Subnet

For both BACnet MS/TP and BACnet/IP, if more than one ProtoCessor is connected to the same subnet, they must be assigned unique Network_Number values.

On the main Web Configuration screen, update the BACnet Network Number field and click submit. The default value is 50001.



9.3 Internet Browser Software Support

The following web browsers are supported:

- Chrome Rev. 57 and higher
- Firefox Rev. 35 and higher
- Microsoft Edge Rev. 41 and higher
- Safari Rev. 3 and higher

NOTE: Internet Explorer is no longer supported as recommended by Microsoft.

NOTE: Computer and network firewalls must be opened for Port 80 to allow FieldServer GUI to function.

9.4 Certification

9.4.1 BTL Mark – BACnet® Testing Laboratory



The BTL Mark is a symbol that indicates that a product has passed a series of rigorous tests conducted by an independent laboratory which verifies that the product correctly implements the BACnet features claimed in the listing. The mark is a symbol of a high-quality BACnet product.

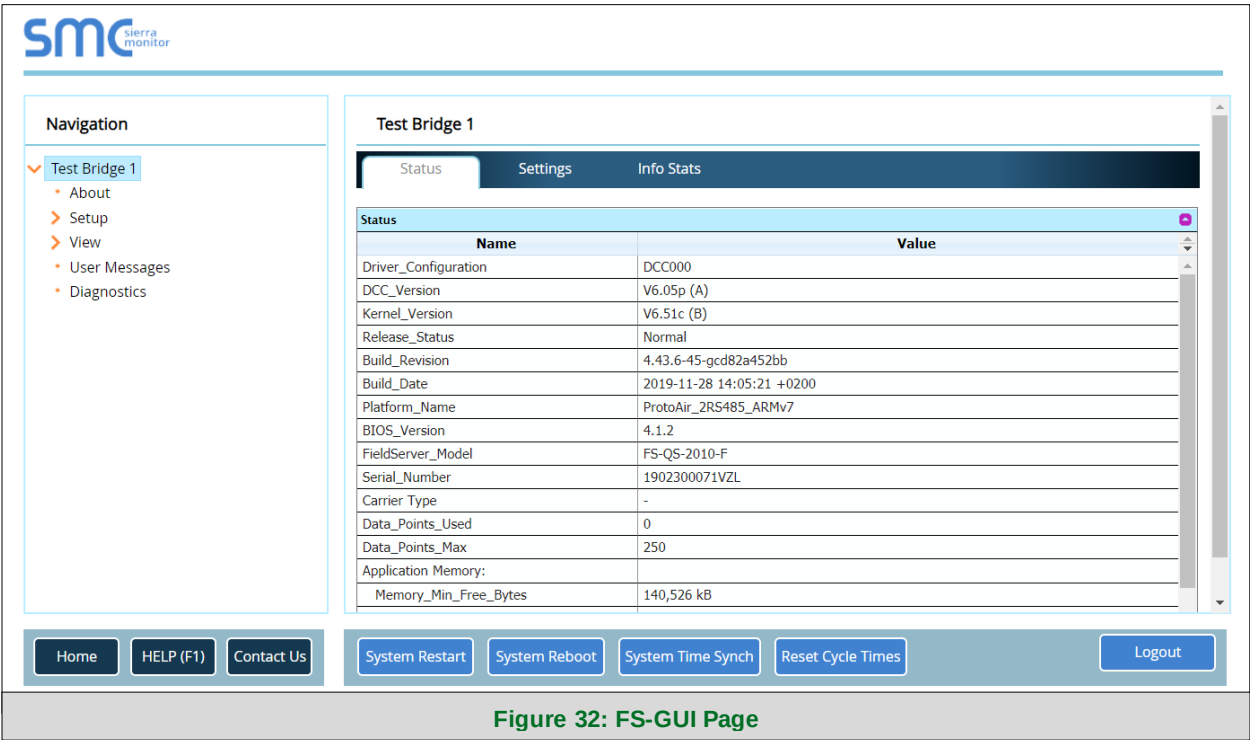
Go to www.BACnetInternational.net for more information about the BACnet Testing Laboratory. Click [here](#) for the BACnet PIC Statement.

NOTE: BACnet is a registered trademark of ASHRAE.

9.5 Change Web Server Security Settings After Initial Setup

NOTE: Any changes will require a FieldServer reboot to take effect.

- From the FS-GUI page, click Setup in the Navigation panel.



9.5.1 Change Security Mode

- Click Security in the Navigation panel.

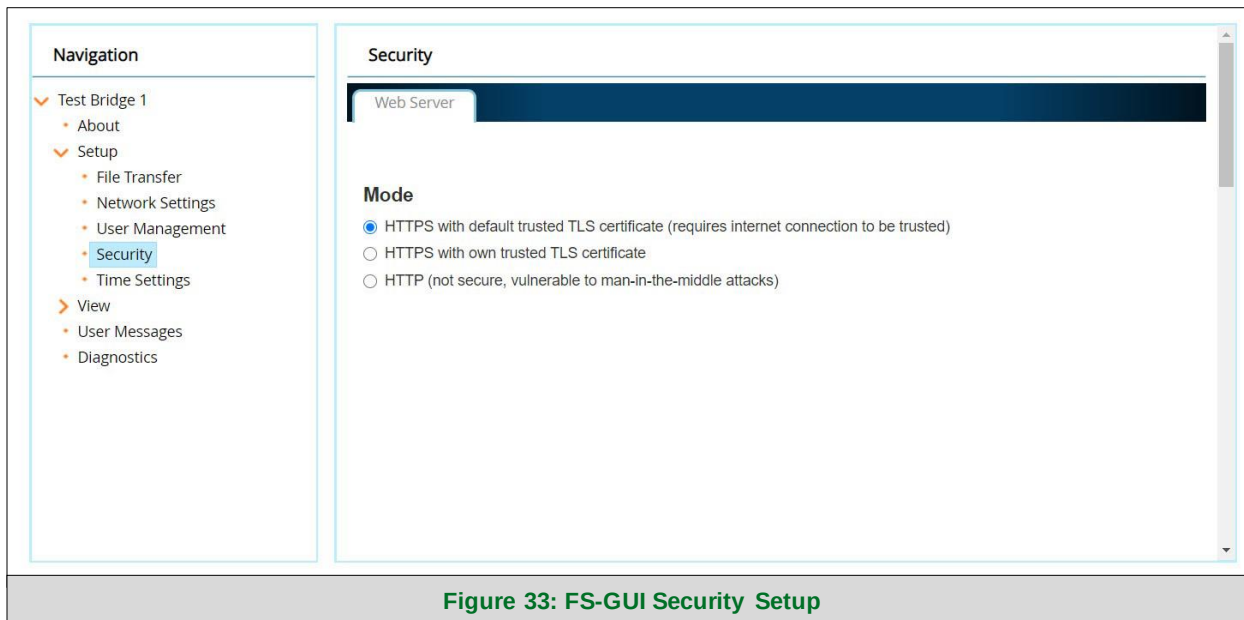


Figure 33: FS-GUI Security Setup

- Click the Mode desired.
 - If HTTPS with own trusted TLS certificate is selected, follow instructions in **Section 5.2.1**
- Click the Save button.

9.5.2 Edit the Certificate Loaded onto the FieldServer

NOTE: A loaded certificate will only be available if the security mode was previously setup as HTTPS with own trusted TLS certificate.

- Click Security in the Navigation panel.

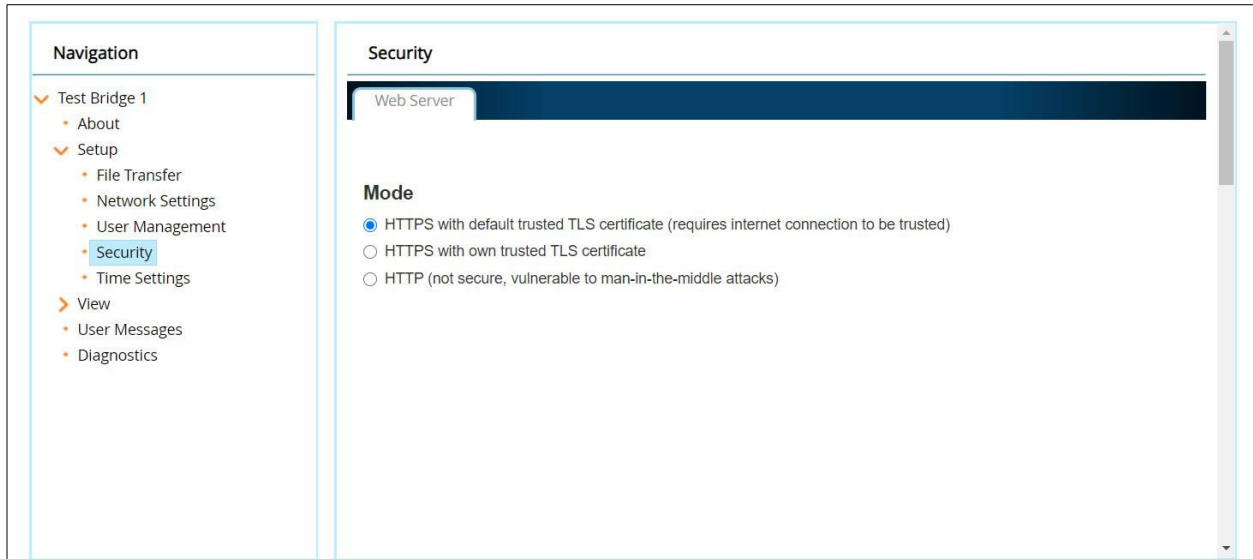


Figure 34: FS-GUI Security Setup – Certificate Loaded

- Click the Edit Certificate button to open the certificate and key fields.
- Edit the loaded certificate or key text as needed.
- Click Save.

9.6 Change User Management Settings

- From the FS-GUI page, click Setup in the Navigation panel.
- Click User Management in the navigation panel.

NOTE: If the passwords are lost, the unit can be reset to factory settings to reinstate the default unique password on the label. For recovery instructions, see the [FieldServer Recovery Instructions document](#). If the default unique password is lost, then the unit must be mailed back to the factory.

NOTE: Any changes will require a FieldServer reboot to take effect.

- Check that the Users tab is selected.

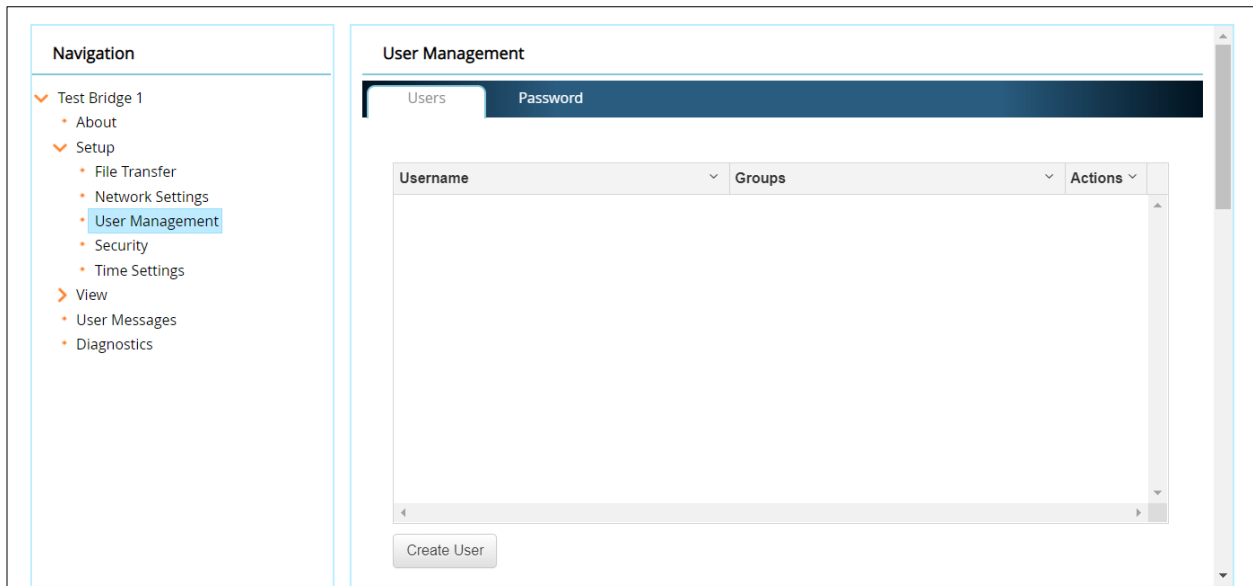


Figure 35: FS-GUI User Management

User Types:

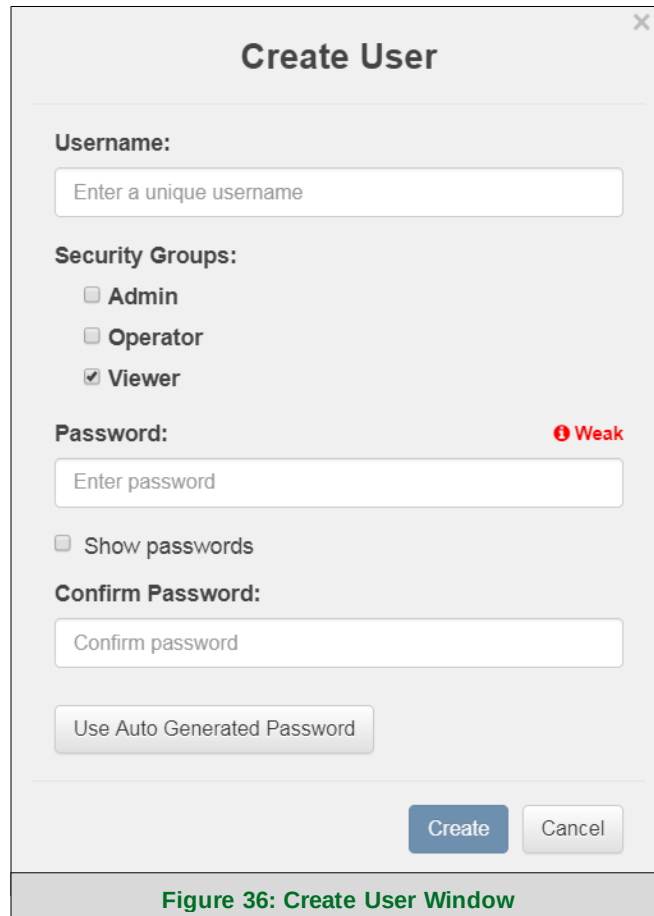
Admin – Can modify and view any settings on the FieldServer.

Operator – Can modify and view any data in the FieldServer array(s).

Viewer – Can only view settings/readings on the FieldServer.

9.6.1 Create Users

- Click the Create User button.



The image shows a 'Create User' dialog box with a title bar and a close button. It contains several input fields and checkboxes. The 'Username' field has a placeholder 'Enter a unique username'. The 'Security Groups' section has three checkboxes: 'Admin', 'Operator', and 'Viewer', with 'Viewer' selected. The 'Password' field has a placeholder 'Enter password' and a red 'Weak' indicator. Below it is a 'Show passwords' checkbox. The 'Confirm Password' field has a placeholder 'Confirm password'. At the bottom, there is a 'Use Auto Generated Password' button and 'Create' and 'Cancel' buttons.

Create User

Username:
Enter a unique username

Security Groups:
☐ Admin
☐ Operator
☒ Viewer

Password: Weak
Enter password

☐ Show passwords

Confirm Password:
Confirm password

Use Auto Generated Password

Create Cancel

Figure 36: Create User Window

- Enter the new User fields: Name, Security Group and Password.
 - User details are hashed and salted

NOTE: The password must meet the minimum complexity requirements. An algorithm automatically checks the password entered and notes the level of strength on the top right of the Password text field.

- Click the Create button.
- Once the Success message appears, click OK.

9.6.2 Edit Users

- Click the pencil icon next to the desired user to open the User Edit window.

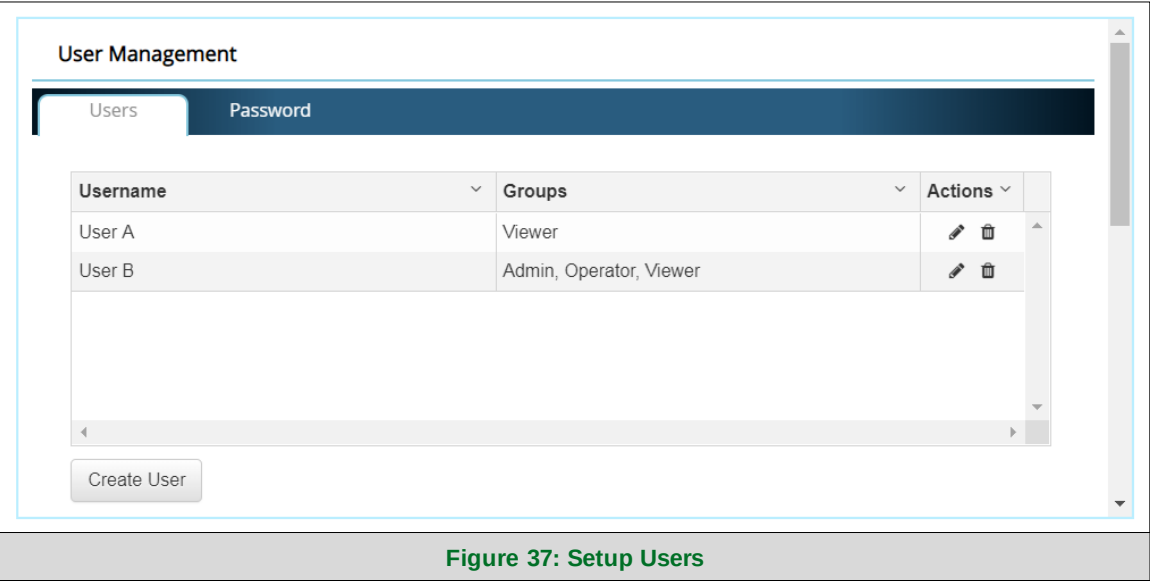


Figure 37: Setup Users

- Once the User Edit window opens, change the User Security Group and Password as needed.

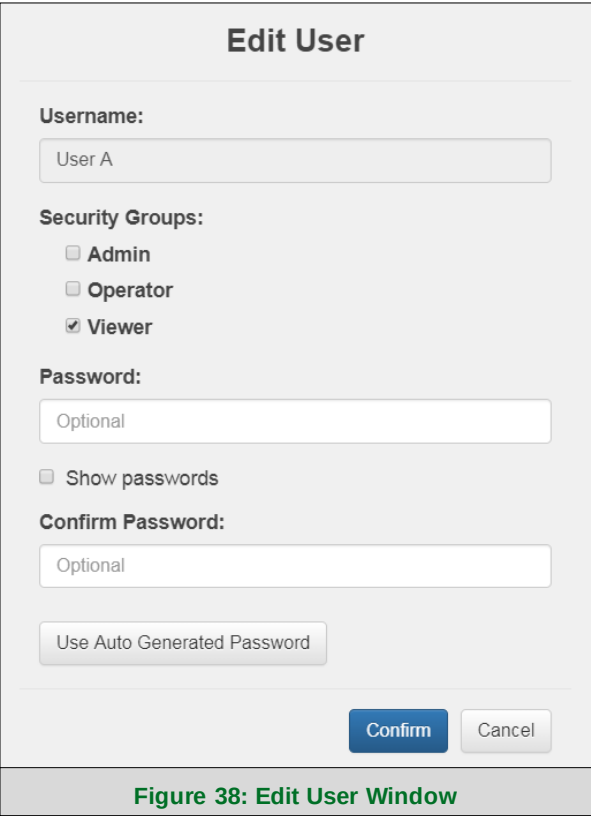
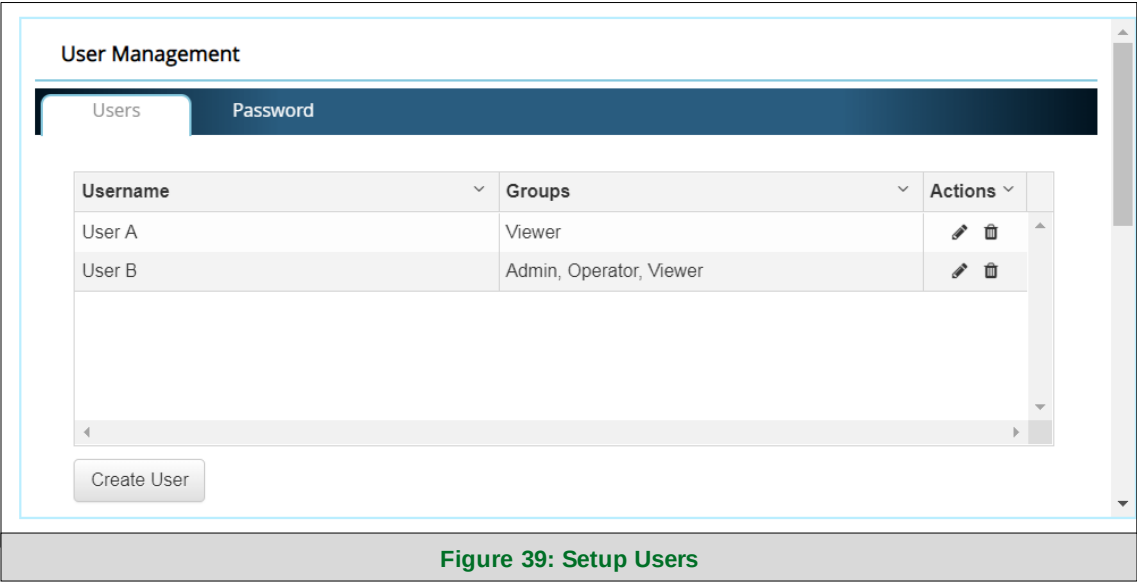


Figure 38: Edit User Window

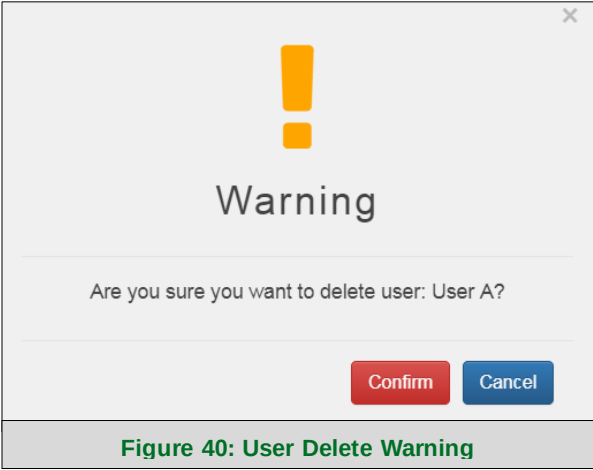
- Click Confirm.
- Once the Success message appears, click OK.

9.6.3 Delete Users

- Click the trash can icon next to the desired user to delete the entry.



- When the warning message appears, click Confirm.



9.6.4 Change FieldServer Password

- Click the Password tab.

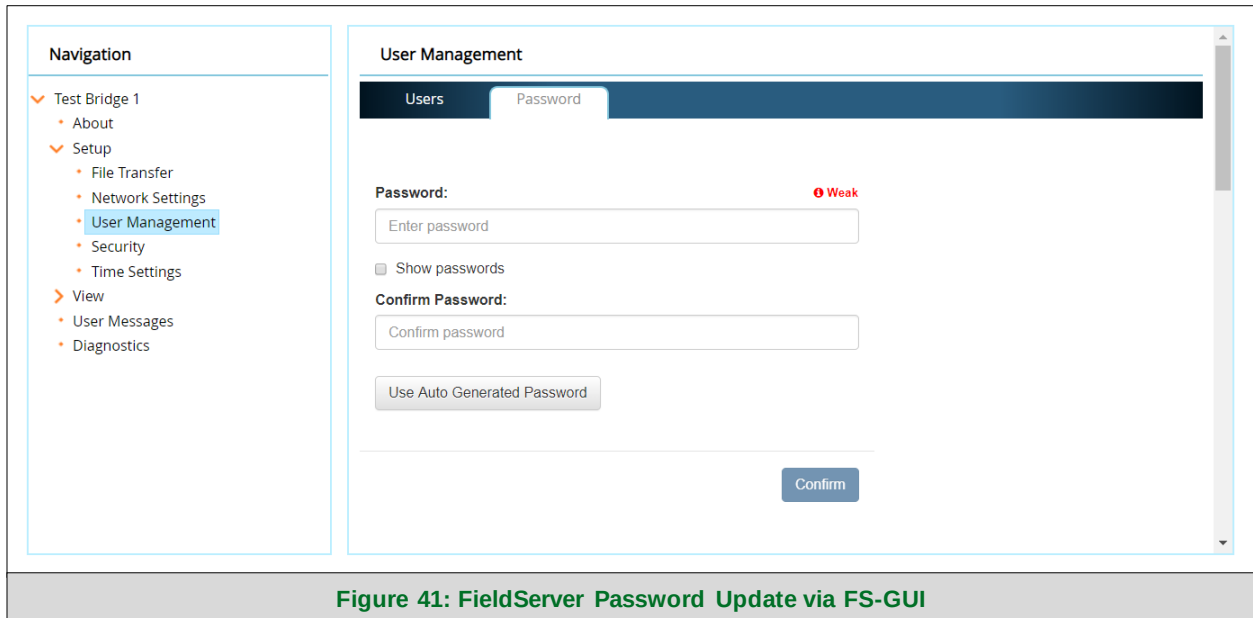


Figure 41: FieldServer Password Update via FS-GUI

- Change the general login password for the FieldServer as needed.

NOTE: The password must meet the minimum complexity requirements. An algorithm automatically checks the password entered and notes the level of strength on the top right of the Password text field.

10 Vendor Information – PLC Multipoint

NOTE: In the headings below “Modbus” refers to “Modbus TCP/IP and Modbus RTU”. Also, “BACnet” refers to “BACnet/IP and BACnet MS/TP”.

10.1 Lighting Panel PSP Mappings to Modbus and BACnet

Point Name	BACnet Data Type	BACnet Object ID	Modbus Register
GRP_001_01_DI	BI	1	00001
GRP_001_02_DI	BI	2	00002
GRP_001_03_DI	BI	3	00003
GRP_001_04_DI	BI	4	00004
GRP_001_05_DI	BI	5	00005
GRP_001_06_DI	BI	6	00006
GRP_001_07_DI	BI	7	00007
GRP_001_08_DI	BI	8	00008
GRP_001_09_DI	BI	9	00009
GRP_001_10_DI	BI	10	00010
GRP_001_11_DI	BI	11	00011
GRP_001_12_DI	BI	12	00012
GRP_001_13_DI	BI	13	00013
GRP_001_14_DI	BI	14	00014
GRP_001_15_DI	BI	15	00015
GRP_001_16_DI	BI	16	00016
GRP_001_17_DI	BI	17	00017
GRP_001_18_DI	BI	18	00018
GRP_001_19_DI	BI	19	00019
GRP_001_20_DI	BI	20	00020
GRP_001_21_DI	BI	21	00021
GRP_001_22_DI	BI	22	00022
GRP_001_23_DI	BI	23	00023
GRP_001_24_DI	BI	24	00024
GRP_001_25_DI	BI	25	00025
GRP_001_26_DI	BI	26	00026
GRP_001_27_DI	BI	27	00027
GRP_001_28_DI	BI	28	00028
GRP_001_29_DI	BI	29	00029
GRP_001_30_DI	BI	30	00030
GRP_001_31_DI	BI	31	00031
GRP_001_32_DI	BI	32	00032
PTN_001_01_DI	BI	33	00101
PTN_001_02_DI	BI	34	00102
PTN_001_03_DI	BI	35	00103
PTN_001_04_DI	BI	36	00104
PTN_001_05_DI	BI	37	00105
PTN_001_06_DI	BI	38	00106
PTN_001_07_DI	BI	39	00107
PTN_001_08_DI	BI	40	00108
RLY_001_01_DI	BI	41	00201
RLY_001_02_DI	BI	42	00202
RLY_001_03_DI	BI	43	00203
RLY_001_04_DI	BI	44	00204
RLY_001_05_DI	BI	45	00205
RLY_001_06_DI	BI	46	00206
RLY_001_07_DI	BI	47	00207
RLY_001_08_DI	BI	48	00208
RLY_001_09_DI	BI	49	00209
RLY_001_10_DI	BI	50	00210
RLY_001_11_DI	BI	51	00211
RLY_001_12_DI	BI	52	00212
RLY_001_13_DI	BI	53	00213
RLY_001_14_DI	BI	54	00214
RLY_001_15_DI	BI	55	00215
RLY_001_16_DI	BI	56	00216

Additional Information

RLY_001_17_DI	BI	57	00217
RLY_001_18_DI	BI	58	00218
RLY_001_19_DI	BI	59	00219
RLY_001_20_DI	BI	60	00220
RLY_001_21_DI	BI	61	00221
RLY_001_22_DI	BI	62	00222
RLY_001_23_DI	BI	63	00223
RLY_001_24_DI	BI	64	00224
RLY_001_25_DI	BI	65	00225
RLY_001_26_DI	BI	66	00226
RLY_001_27_DI	BI	67	00227
RLY_001_28_DI	BI	68	00228
RLY_001_29_DI	BI	69	00229
RLY_001_30_DI	BI	70	00230
RLY_001_31_DI	BI	71	00231
RLY_001_32_DI	BI	72	00232
RLY_001_33_DI	BI	73	00233
RLY_001_34_DI	BI	74	00234
RLY_001_35_DI	BI	75	00235
RLY_001_36_DI	BI	76	00236
RLY_001_37_DI	BI	77	00237
RLY_001_38_DI	BI	78	00238
RLY_001_39_DI	BI	79	00239
RLY_001_40_DI	BI	80	00240
RLY_001_41_DI	BI	81	00241
RLY_001_42_DI	BI	82	00242
RLY_001_43_DI	BI	83	00243
RLY_001_44_DI	BI	84	00244
RLY_001_45_DI	BI	85	00245
RLY_001_46_DI	BI	86	00246
RLY_001_47_DI	BI	87	00247
RLY_001_48_DI	BI	88	00248
DIM_001_01_DI	AI	89	40001
DIM_001_02_DI	AI	90	40002
DIM_001_03_DI	AI	91	40003
DIM_001_04_DI	AI	92	40004
DIM_001_05_DI	AI	93	40005
DIM_001_06_DI	AI	94	40006
DIM_001_07_DI	AI	95	40007
DIM_001_08_DI	AI	96	40008
DIM_001_09_DI	AI	97	40009
DIM_001_10_DI	AI	98	40010
DIM_001_11_DI	AI	99	40011
DIM_001_12_DI	AI	100	40012
DIM_001_13_DI	AI	101	40013
DIM_001_14_DI	AI	102	40014
DIM_001_15_DI	AI	103	40015
DIM_001_16_DI	AI	104	40016
DIM_001_17_DI	AI	105	40017
DIM_001_18_DI	AI	106	40018
DIM_001_19_DI	AI	107	40019
DIM_001_20_DI	AI	108	40020
DIM_001_21_DI	AI	109	40021
DIM_001_22_DI	AI	110	40022
DIM_001_23_DI	AI	111	40023
DIM_001_24_DI	AI	112	40024
SW_001_01_DI	BI	113	10001
SW_001_02_DI	BI	114	10002
SW_001_03_DI	BI	115	10003
SW_001_04_DI	BI	116	10004
SW_001_05_DI	BI	117	10005
SW_001_06_DI	BI	118	10006
SW_001_07_DI	BI	119	10007
SW_001_08_DI	BI	120	10008
SW_001_09_DI	BI	121	10009

Additional Information

SW_001_10_DI	BI	122	10010
SW_001_11_DI	BI	123	10011
SW_001_12_DI	BI	124	10012
SW_001_13_DI	BI	125	10013
SW_001_14_DI	BI	126	10014
SW_001_15_DI	BI	127	10015
SW_001_16_DI	BI	128	10016
SW_001_17_DI	BI	129	10017
SW_001_18_DI	BI	130	10018
SW_001_19_DI	BI	131	10019
SW_001_20_DI	BI	132	10020
SW_001_21_DI	BI	133	10021
SW_001_22_DI	BI	134	10022
SW_001_23_DI	BI	135	10023
SW_001_24_DI	BI	136	10024
SW_001_25_DI	BI	137	10025
SW_001_26_DI	BI	138	10026
SW_001_27_DI	BI	139	10027
SW_001_28_DI	BI	140	10028
SW_001_29_DI	BI	141	10029
SW_001_30_DI	BI	142	10030
SW_001_31_DI	BI	143	10031
SW_001_32_DI	BI	144	10032
SW_001_33_DI	BI	145	10033
SW_001_34_DI	BI	146	10034
SW_001_35_DI	BI	147	10035
SW_001_36_DI	BI	148	10036
SW_001_37_DI	BI	149	10037
SW_001_38_DI	BI	150	10038
SW_001_39_DI	BI	151	10039
SW_001_40_DI	BI	152	10040
SW_001_41_DI	BI	153	10041
SW_001_42_DI	BI	154	10042
SW_001_43_DI	BI	155	10043
SW_001_44_DI	BI	156	10044
SW_001_45_DI	BI	157	10045
SW_001_46_DI	BI	158	10046
SW_001_47_DI	BI	159	10047
SW_001_48_DI	BI	160	10048
BTN_001_01_DI	BI	161	10101
BTN_001_02_DI	BI	162	10102
BTN_001_03_DI	BI	163	10103
BTN_001_04_DI	BI	164	10104
BTN_001_05_DI	BI	165	10105
BTN_001_06_DI	BI	166	10106
BTN_001_07_DI	BI	167	10107
BTN_001_08_DI	BI	168	10108
BTN_001_09_DI	BI	169	10109
BTN_001_10_DI	BI	170	10110
BTN_001_11_DI	BI	171	10111
BTN_001_12_DI	BI	172	10112
BTN_001_13_DI	BI	173	10113
BTN_001_14_DI	BI	174	10114
BTN_001_15_DI	BI	175	10115
BTN_001_16_DI	BI	176	10116
BTN_001_17_DI	BI	177	10117
BTN_001_18_DI	BI	178	10118
BTN_001_19_DI	BI	179	10119
BTN_001_20_DI	BI	180	10120
BTN_001_21_DI	BI	181	10121
BTN_001_22_DI	BI	182	10122
BTN_001_23_DI	BI	183	10123
BTN_001_24_DI	BI	184	10124
BTN_001_25_DI	BI	185	10125
BTN_001_26_DI	BI	186	10126

Additional Information

BTN_001_27_DI	BI	187	10127
BTN_001_28_DI	BI	188	10128
BTN_001_29_DI	BI	189	10129
BTN_001_30_DI	BI	190	10130
BTN_001_31_DI	BI	191	10131
BTN_001_32_DI	BI	192	10132
BTN_001_33_DI	BI	193	10133
BTN_001_34_DI	BI	194	10134
BTN_001_35_DI	BI	195	10135
BTN_001_36_DI	BI	196	10136
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GRP_002_25_DO	BO	137	01025

Additional Information

GRP_002_26_DO	BO	138	01026
GRP_002_27_DO	BO	139	01027
GRP_002_28_DO	BO	140	01028
GRP_002_29_DO	BO	141	01029
GRP_002_30_DO	BO	142	01030
GRP_002_31_DO	BO	143	01031
GRP_002_32_DO	BO	144	01032
PTN_002_01_DO	BO	145	01101
PTN_002_02_DO	BO	146	01102
PTN_002_03_DO	BO	147	01103
PTN_002_04_DO	BO	148	01104
PTN_002_05_DO	BO	149	01105
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RLY_002_01_DO	BO	153	01201
RLY_002_02_DO	BO	154	01202
RLY_002_03_DO	BO	155	01203
RLY_002_04_DO	BO	156	01204
RLY_002_05_DO	BO	157	01205
RLY_002_06_DO	BO	158	01206
RLY_002_07_DO	BO	159	01207
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RLY_002_11_DO	BO	163	01211
RLY_002_12_DO	BO	164	01212
RLY_002_13_DO	BO	165	01213
RLY_002_14_DO	BO	166	01214
RLY_002_15_DO	BO	167	01215
RLY_002_16_DO	BO	168	01216
RLY_002_17_DO	BO	169	01217
RLY_002_18_DO	BO	170	01218
RLY_002_19_DO	BO	171	01219
RLY_002_20_DO	BO	172	01220
RLY_002_21_DO	BO	173	01221
RLY_002_22_DO	BO	174	01222
RLY_002_23_DO	BO	175	01223
RLY_002_24_DO	BO	176	01224
RLY_002_25_DO	BO	177	01225
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RLY_002_29_DO	BO	181	01229
RLY_002_30_DO	BO	182	01230
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RLY_002_32_DO	BO	184	01232
RLY_002_33_DO	BO	185	01233
RLY_002_34_DO	BO	186	01234
RLY_002_35_DO	BO	187	01235
RLY_002_36_DO	BO	188	01236
RLY_002_37_DO	BO	189	01237
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RLY_002_42_DO	BO	194	01242
RLY_002_43_DO	BO	195	01243
RLY_002_44_DO	BO	196	01244
RLY_002_45_DO	BO	197	01245
RLY_002_46_DO	BO	198	01246
RLY_002_47_DO	BO	199	01247
RLY_002_48_DO	BO	200	01248
DIM_002_01_DO	AO	201	41001
DIM_002_02_DO	AO	202	41002

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DIM_002_03_DO	AO	203	41003
DIM_002_04_DO	AO	204	41004
DIM_002_05_DO	AO	205	41005
DIM_002_06_DO	AO	206	41006
DIM_002_07_DO	AO	207	41007
DIM_002_08_DO	AO	208	41008
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DIM_002_15_DO	AO	215	41015
DIM_002_16_DO	AO	216	41016
DIM_002_17_DO	AO	217	41017
DIM_002_18_DO	AO	218	41018
DIM_002_19_DO	AO	219	41019
DIM_002_20_DO	AO	220	41020
DIM_002_21_DO	AO	221	41021
DIM_002_22_DO	AO	222	41022
DIM_002_23_DO	AO	223	41023
DIM_002_24_DO	AO	224	41024
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GRP_003_04_DO	BO	228	02004
GRP_003_05_DO	BO	229	02005
GRP_003_06_DO	BO	230	02006
GRP_003_07_DO	BO	231	02007
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GRP_003_17_DO	BO	241	02017
GRP_003_18_DO	BO	242	02018
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GRP_003_20_DO	BO	244	02020
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PTN_003_07_DO	BO	263	02107
PTN_003_08_DO	BO	264	02108
RLY_003_01_DO	BO	265	02201
RLY_003_02_DO	BO	266	02202
RLY_003_03_DO	BO	267	02203

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RLY_003_04_DO	BO	268	02204
RLY_003_05_DO	BO	269	02205
RLY_003_06_DO	BO	270	02206
RLY_003_07_DO	BO	271	02207
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RLY_003_19_DO	BO	283	02219
RLY_003_20_DO	BO	284	02220
RLY_003_21_DO	BO	285	02221
RLY_003_22_DO	BO	286	02222
RLY_003_23_DO	BO	287	02223
RLY_003_24_DO	BO	288	02224
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RLY_003_35_DO	BO	299	02235
RLY_003_36_DO	BO	300	02236
RLY_003_37_DO	BO	301	02237
RLY_003_38_DO	BO	302	02238
RLY_003_39_DO	BO	303	02239
RLY_003_40_DO	BO	304	02240
RLY_003_41_DO	BO	305	02241
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RLY_003_47_DO	BO	311	02247
RLY_003_48_DO	BO	312	02248
DIM_003_01_DO	AO	313	42001
DIM_003_02_DO	AO	314	42002
DIM_003_03_DO	AO	315	42003
DIM_003_04_DO	AO	316	42004
DIM_003_05_DO	AO	317	42005
DIM_003_06_DO	AO	318	42006
DIM_003_07_DO	AO	319	42007
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DIM_003_14_DO	AO	326	42014
DIM_003_15_DO	AO	327	42015
DIM_003_16_DO	AO	328	42016
DIM_003_17_DO	AO	329	42017
DIM_003_18_DO	AO	330	42018
DIM_003_19_DO	AO	331	42019
DIM_003_20_DO	AO	332	42020

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DIM_003_21_DO	AO	333	42021
DIM_003_22_DO	AO	334	42022
DIM_003_23_DO	AO	335	42023
DIM_003_24_DO	AO	336	42024
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GRP_004_20_DO	BO	356	03020
GRP_004_21_DO	BO	357	03021
GRP_004_22_DO	BO	358	03022
GRP_004_23_DO	BO	359	03023
GRP_004_24_DO	BO	360	03024
GRP_004_25_DO	BO	361	03025
GRP_004_26_DO	BO	362	03026
GRP_004_27_DO	BO	363	03027
GRP_004_28_DO	BO	364	03028
GRP_004_29_DO	BO	365	03029
GRP_004_30_DO	BO	366	03030
GRP_004_31_DO	BO	367	03031
GRP_004_32_DO	BO	368	03032
PTN_004_01_DO	BO	369	03101
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PTN_004_03_DO	BO	371	03103
PTN_004_04_DO	BO	372	03104
PTN_004_05_DO	BO	373	03105
PTN_004_06_DO	BO	374	03106
PTN_004_07_DO	BO	375	03107
PTN_004_08_DO	BO	376	03108
RLY_004_01_DO	BO	377	03201
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RLY_004_09_DO	BO	385	03209
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RLY_004_16_DO	BO	392	03216
RLY_004_17_DO	BO	393	03217
RLY_004_18_DO	BO	394	03218
RLY_004_19_DO	BO	395	03219
RLY_004_20_DO	BO	396	03220
RLY_004_21_DO	BO	397	03221

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RLY_004_22_DO	BO	398	03222
RLY_004_23_DO	BO	399	03223
RLY_004_24_DO	BO	400	03224
RLY_004_25_DO	BO	401	03225
RLY_004_26_DO	BO	402	03226
RLY_004_27_DO	BO	403	03227
RLY_004_28_DO	BO	404	03228
RLY_004_29_DO	BO	405	03229
RLY_004_30_DO	BO	406	03230
RLY_004_31_DO	BO	407	03231
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RLY_004_33_DO	BO	409	03233
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RLY_004_44_DO	BO	420	03244
RLY_004_45_DO	BO	421	03245
RLY_004_46_DO	BO	422	03246
RLY_004_47_DO	BO	423	03247
RLY_004_48_DO	BO	424	03248
DIM_004_01_DO	AO	425	43001
DIM_004_02_DO	AO	426	43002
DIM_004_03_DO	AO	427	43003
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DIM_004_06_DO	AO	430	43006
DIM_004_07_DO	AO	431	43007
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DIM_004_09_DO	AO	433	43009
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DIM_004_11_DO	AO	435	43011
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DIM_004_19_DO	AO	443	43019
DIM_004_20_DO	AO	444	43020
DIM_004_21_DO	AO	445	43021
DIM_004_22_DO	AO	446	43022
DIM_004_23_DO	AO	447	43023
DIM_004_24_DO	AO	448	43024

11 Specifications



	ProtoCessor FPC-ED2
Electrical Connections	One 3-pin Phoenix connector with RS-485 port (+ / - / gnd) One Ethernet 10/100 BaseT port
Approvals	CE certified; UL 916 approved; WEEE compliant; EN 60950-1, EN 50491-3 and CSA C22-2 standards; FCC Class A Part 15; DNP 3.0 conformance tested; RoHS compliant; CSA 205 approved BTL Marked
Power Requirements	5VDC
Physical Dimensions	6.9 x 3.0 x 2.0 cm (2.7 x 1.2 x 0.8 in.)
Weight	0.03 kg (0.07 lbs)
Operating Temperature	-40°C to 75°C (-40°F to 167°F)
Surge Suppression	EN61000-4-2 ESD EN61000-4-3 EMC EN61000-4-4 EFT
Humidity	5 - 90% RH (non-condensing)
(Specifications subject to change without notice)	
Figure 42: Specifications	

Warning: This equipment is compliant with Class A of CISPR 32. In a residential environment, this equipment may cause radio interference.

11.1.1 Compliance with UL Regulations

For UL compliance, the following instructions must be met when operating the ProtoCessor.

- The units shall be powered by listed LPS or Class 2 power supply suited to the expected operating temperature range.
- The interconnecting power connector and power cable shall:
 - Comply with local electrical code
 - Be suited to the expected operating temperature range
 - Meet the current and voltage rating for the ProtoCessor
- Furthermore, the interconnecting power cable shall:
 - Be of length not exceeding 3.05m (118.3")
 - Be constructed of materials rated VW-1, FT-1 or better
- If the unit is to be installed in an operating environment with a temperature above 65 °C, it should be installed in a Restricted Access Area requiring a key or a special tool to gain access.
- This device must not be connected to a LAN segment with outdoor wiring.

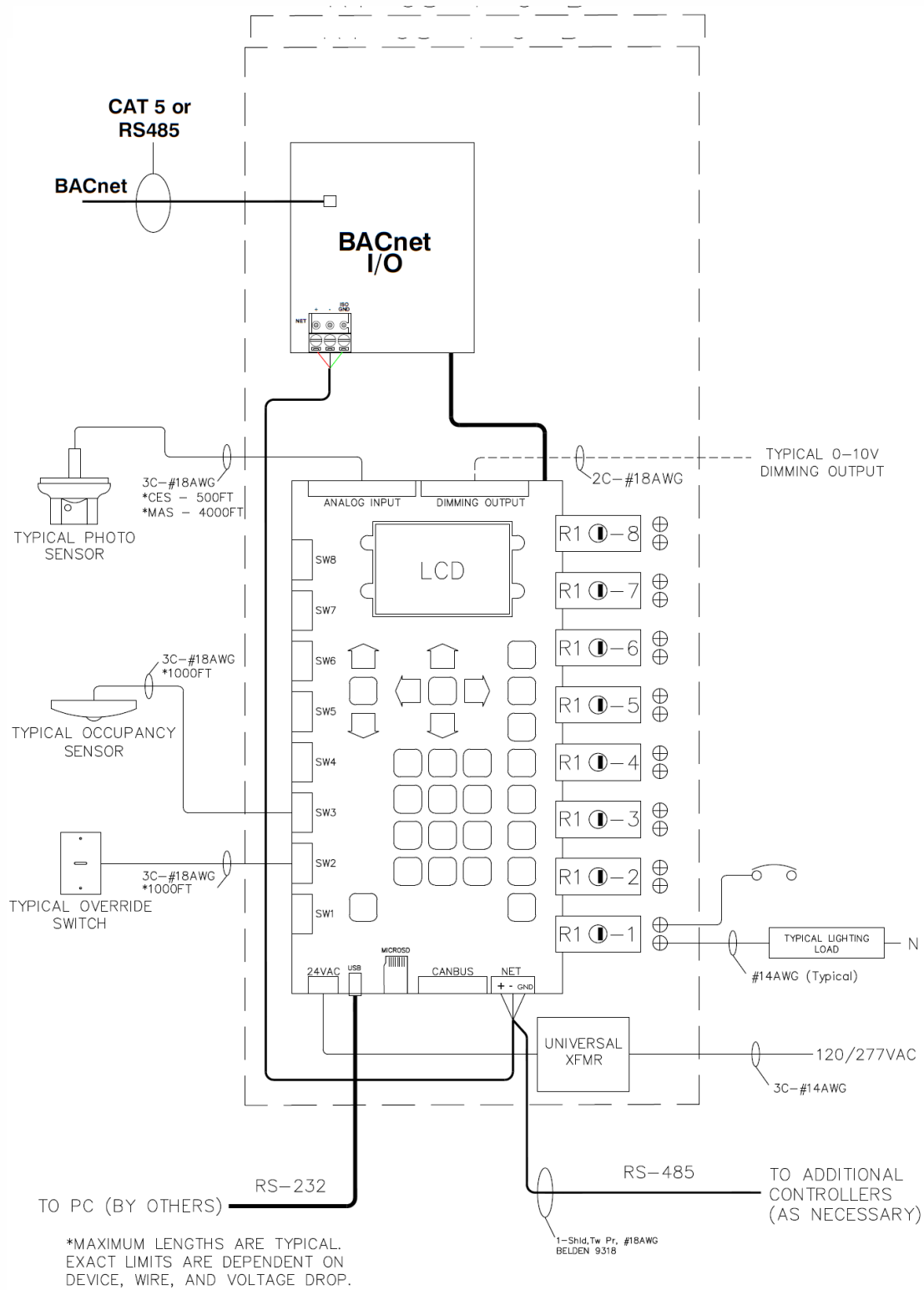
12 Limited 2 Year Warranty

MSA Safety warrants its products to be free from defects in workmanship or material under normal use and service for two years after date of shipment. MSA Safety will repair or replace any equipment found to be defective during the warranty period. Final determination of the nature and responsibility for defective or damaged equipment will be made by MSA Safety personnel.

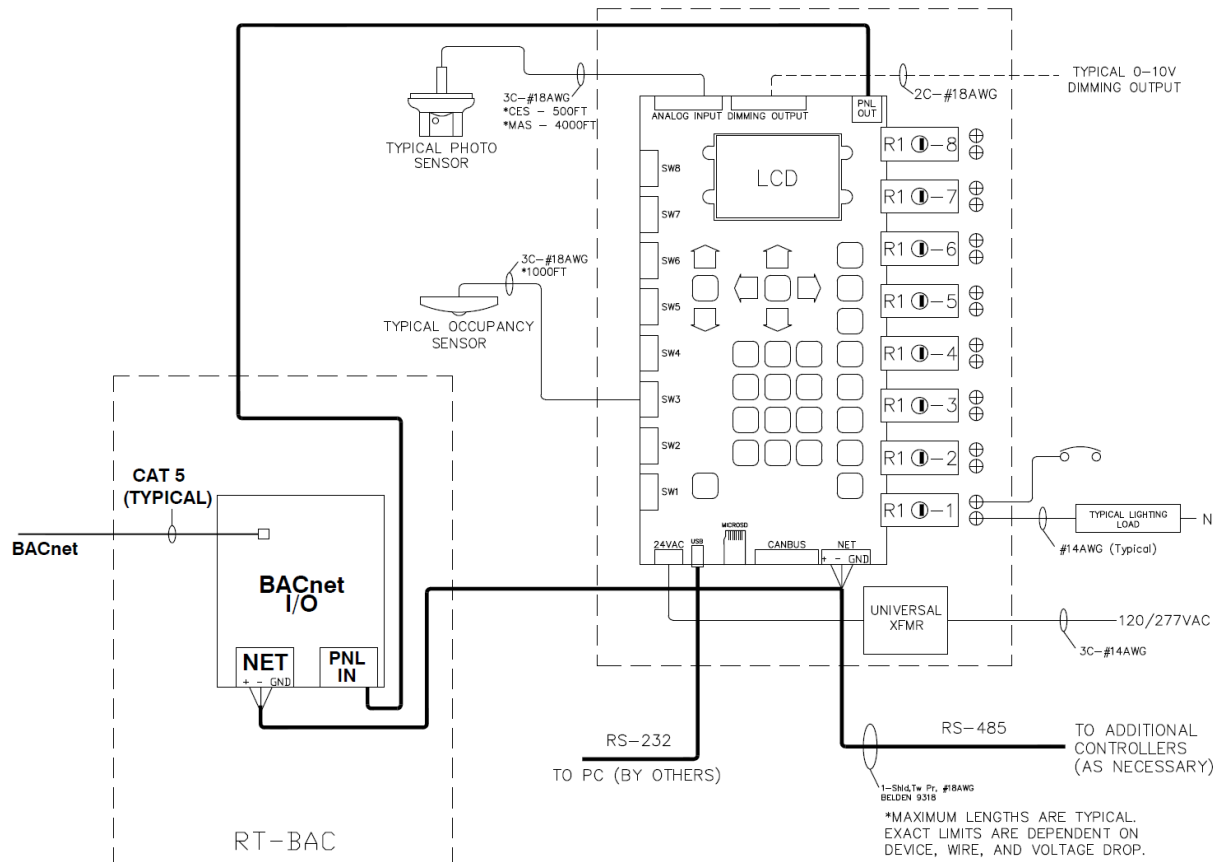
All warranties hereunder are contingent upon proper use in the application for which the product was intended and do not cover products which have been modified or repaired without MSA Safety's approval or which have been subjected to accident, improper maintenance, installation or application; or on which original identification marks have been removed or altered. This Limited Warranty also will not apply to interconnecting cables or wires, consumables or to any damage resulting from battery leakage.

In all cases MSA Safety's responsibility and liability under this warranty shall be limited to the cost of the equipment. The purchaser must obtain shipping instructions for the prepaid return of any item under this warranty provision and compliance with such instruction shall be a condition of this warranty.

Except for the express warranty stated above, MSA Safety disclaims all warranties with regard to the products sold hereunder including all implied warranties of merchantability and fitness and the express warranties stated herein are in lieu of all obligations or liabilities on the part of MSA Safety for damages including, but not limited to, consequential damages arising out of/or in connection with the use or performance of the product.



BACnet Wiring Connections - Installed in a Tandem Panel



BACnet Wiring Connections for a Stand-alone BACnet Panel