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QuickServer Industrial Protocol Gateway

Startup Guide

VEEDER-ROOT

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Appendix D: Reference

Figures

Tables

Introduction

The QuickServer is an external, high performance building automation multi-protocol gateway that is preconfigured to automatically communicate between Veeder-Root's products (hereafter called "device") connected to the QuickServer and automatically configures them for BACnet MS/TP, BACnet/IP, Modbus RTU and Modbus TCP/IP.

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

The QuickServer ProtoNode is compatible with:

TLS-3XX Consoles hardware/software requirements:

- RS-232/RS-485 Dual Interface Module

TLS-4XX Consoles hardware/software requirements:

- RS-232/RS-485 Dual Interface Module

Contractor Certification Requirements

Veeder-Root requires the following minimum training certifications for contractors who will install and setup the equipment discussed in this manual:

Installer Certification (Level 1): Contractors holding valid Installer Certification are approved to perform wiring and conduit routing; equipment mounting; probe, sensor and carbon canister vapor polisher installation; wireless equipment installation; tank and line preparation; and line leak detector installation.

Technician Certification (Level 2/3): Contractors holding valid Technician Certifications are approved to perform installation checkout, startup, programming and operations training, system tests, troubleshooting and servicing for all Veeder-Root Series Tank Monitoring Systems, including Line Leak Detection. In addition, Contractors with the following sub-certification designations are approved to perform installation checkout, startup, programming, system tests, troubleshooting, service techniques and operations training on the designated system.

- Wireless 2
- Tall Tank

Warranty Registrations may only be submitted by selected Distributors.

Safety Precautions

The following safety symbols may be used throughout this manual to alert you to important safety hazards and precautions

 **EXPLOSIVE** Fuels and their vapors are extremely explosive if ignited.	 **FLAMMABLE** Fuels and their vapors are extremely flammable.
 **ELECTRICITY** High voltage exists in, and is supplied to, the device. A potential shock hazard exists.	 **TURN POWER OFF** Live power to a device creates a potential shock hazard. Turn Off power to the device and associated accessories when servicing the unit.

⚠WARNING Indicates a hazardous situation which, if not avoided, could result in death or serious injury.	**READ ALL RELATED MANUALS** Knowledge of all related procedures before you begin work is important. Read and understand all manuals thoroughly. If you do not understand a procedure, ask someone who does.

Safety Warnings

⚠ WARNING

This console contains high voltages which can be lethal. It is also connected to low power devices that must be kept intrinsically safe.

FAILURE TO COMPLY WITH THE FOLLOWING WARNINGS AND SAFETY PRECAUTIONS COULD CAUSE DAMAGE TO PROPERTY, ENVIRONMENT, RESULTING IN SERIOUS INJURY OR DEATH.

1. **Turn off and tag power at the circuit breaker. Do not connect the console AC power supply wires at the breaker until all devices are connected.**
2. **Attach conduit from the power panel to the console's Power Area knockouts only.**
3. **Comply with all applicable codes including: the National Electrical Code; federal, state, and local codes; and other applicable safety codes.**

Connecting power wires to a live circuit can cause electrical shock that may result in serious injury or death.

Routing conduit for power wires into the intrinsically safe compartment can result in fire or explosion resulting in serious injury or death.

Related Documents

576013-879	TLS-3XX Console Site Prep And Installation Manual
577014-073	TLS-450PLUS Console Site Prep And Installation Manual
577013-879	TLS-450 Console Site Prep And Installation Manual
577014-110	TLS-450PLUS/TLS4 Operator's Manual

Precautions Against Static Electricity

If necessary to install electronic components in the ATG to implement this feature, read the following static electricity precautions:

1. Before handling any components, discharge your body's static electric charge by touching a grounded surface.
2. Do not remove parts from their anti-static bags until you are ready to install them.
3. Do not lay parts on the anti-static bags! Only the insides are anti-static.
4. When handling parts, hold them by their edges and their metal mounting brackets.
5. Avoid touching comm board components or edge connectors that plug into slots when handling.
6. Never slide parts over any surface.
7. Avoid plastic, vinyl, and Styrofoam in your work area.

QuickServer Gateway.

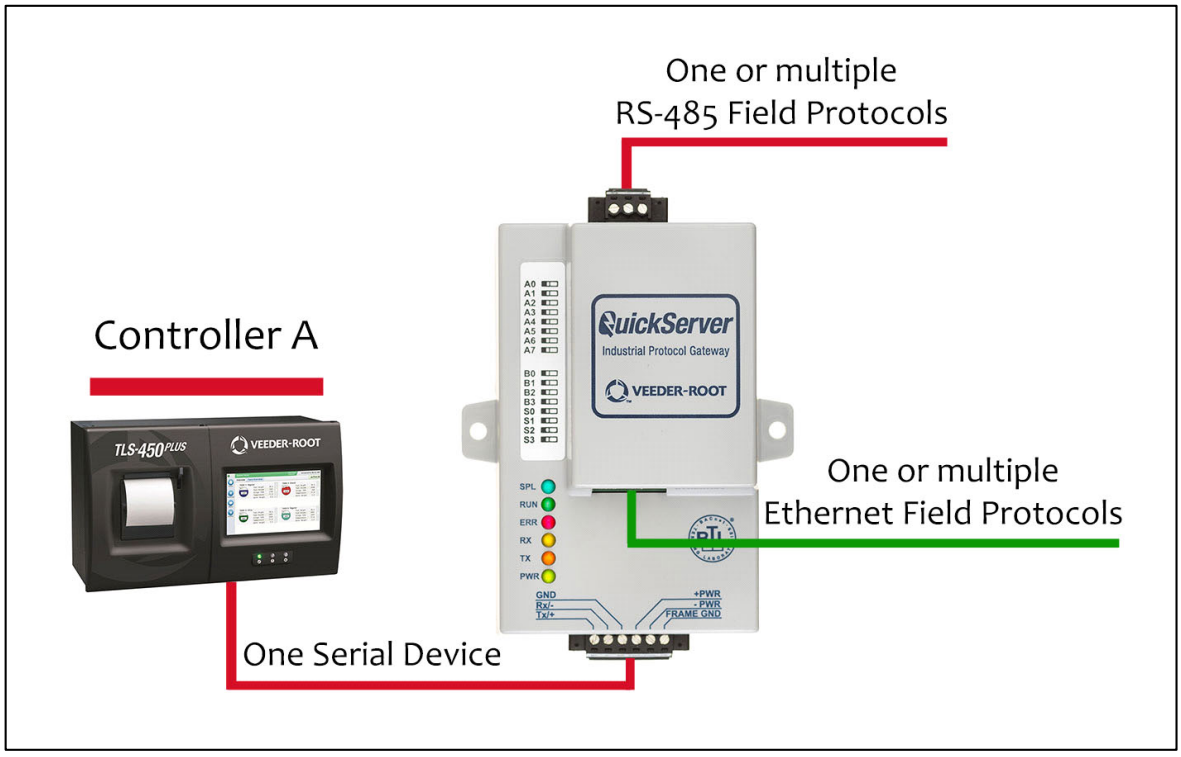

Figure 1. QuickServer ProtoNode Connectivity Diagram (TLS450PLUS Shown)

Quick Start Guide

1. Record the information about the unit. (1 page 5)
2. Set the device's COM settings for each of the devices that are to connect to the QuickServer. (2 page 6)
3. Select the protocol configuration on the S Bank DIP switches. (3 page 6)
4. BACnet MS/TP: Set the MAC Address on the A Bank DIP switches. (4 page 7)
5. Modbus RTU or Modbus TCP/IP: Set the Node-ID. (5 page 7)
6. BACnet MS/TP or Modbus RTU: Set the baud rate of the field protocol on the B Bank DIP switches. (6 page 8)
7. Connect the QuickServer 6-pin RS-232 connector to the Veeder-Root ATG. (7 page 9)
8. Connect the QuickServer ProtoNode 3 pin RS-485 port to the field protocol cabling. (8 page 10)
9. Connect power to the QuickServer 6-pin connector. (9 page 11)
10. Use a web browser to access the QuickServer Web Configurator page to select the profiles of the devices attached to the QuickServer and input the Node-ID from each device. Once the devices are selected, the QuickServer automatically builds and loads the appropriate configuration. (10 page 12)
11. BACnet MS/TP or BACnet/IP: Set the BACnet Device Instance. (11 page 15)
12. Ethernet Network: Use a web browser to access the QuickServer Web Configurator page to change the IP Address. No changes to the configuration are necessary. (12 page 17)

Setup For QuickServer

1 Record Identification Data

The QuickServer 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:

Table 1. QuickServer Part Number

Model	Part Number
QuickServer ProtoNode	330020-840 / 330020-841

QuickServer ProtoNode units have the following 3 ports: RS-232 , Ethernet and RS-485.

Point Count Capacity And Registers Per Device

The total number of points presented by the device attached to the QuickServer ProtoNode-1504 cannot exceed 5000.

The total number of points per QuickServer profile is shown in Table 2:

Table 2. Registers Per Device

Profile	Points Per Device
System	29
Unknown Type	3
Tank	56
Liquid Sensor	9
Input	6
Type A Sensor	5
Type B Sensor	6
Vapor Sensor	9
Groundwater Sensor	9
MAG Sensor	14
Smart Sensor	17
PLLD	19

2 Input COM Settings on the device connected to the QuickServer

- The connected serial device MUST have the same baud rate, data bits, stop bits, and parity settings as the QuickServer.
- To set the QuickServer's COM settings, See "Connecting to QuickServer Web Configurator" on page 13.
- Table 3 specifies the device serial port settings required to communicate with the QuickServer.

Table 3. COM Settings

Port Setting	TLS-3XX/TLS4XX
Protocol	V-R Interface
Baud Rate	9600
Parity	Odd
Data Bits	7
Stop Bits	1

3 Selecting The Desired Protocol Configuration

QuickServer ProtoNode units use the 'S' bank of DIP switches (S0 - S3) to select the protocol configuration (see Figure 2).

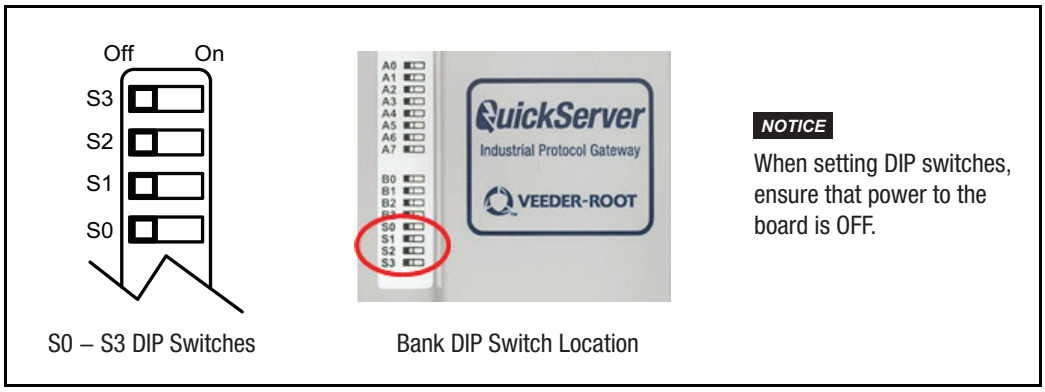

Figure 2. QuickServer S Bank (Profile Selections) DIP Switches

See Table 4 for the S Bank DIP switch settings.

Table 4. Profile Settings For QuickServer

QuickServer ProtoNode	S Bank DIP Switches			
Profile	**S0**	**S1**	**S2**	**S3**
BACnet/IP	Off	Off	Off	Off
BACnet MS/TP	On	Off	Off	Off

Table 4. Profile Settings For QuickServer (Continued)

QuickServer ProtoNode	S Bank DIP Switches			
Profile	S0	S1	S2	S3
Modbus TCP/IP and Modbus RTU	Off	On	Off	Off

BMS Network Settings: MAC Address Node-ID And Baud Rate

4 BACNET MS/TP: SETTING THE MAC ADDRESS FOR BMS NETWORK

- Only 1 MAC Address is set for QuickServer regardless of how many devices are connected to QuickServer.
- Set the BACnet MS/TP MAC Address of the QuickServer to a value between 1 to 127 (Master MAC Address); this is so that the BMS front end can find QuickServer via BACnet Auto-Discovery.

NOTICE **Never set a BACnet MS/TP MAC Address of the QuickServer to a value from 128 to 255. Addresses from 128 to 255 are Slave Addresses and can not be discovered by BMS front ends that support Auto-Discovery of BACnet MS/TP devices.**

- Set “A” bank DIP switches A0 – A7 to assign a MAC Address to the QuickServer for BACnet MS/TP (see Figure 3).

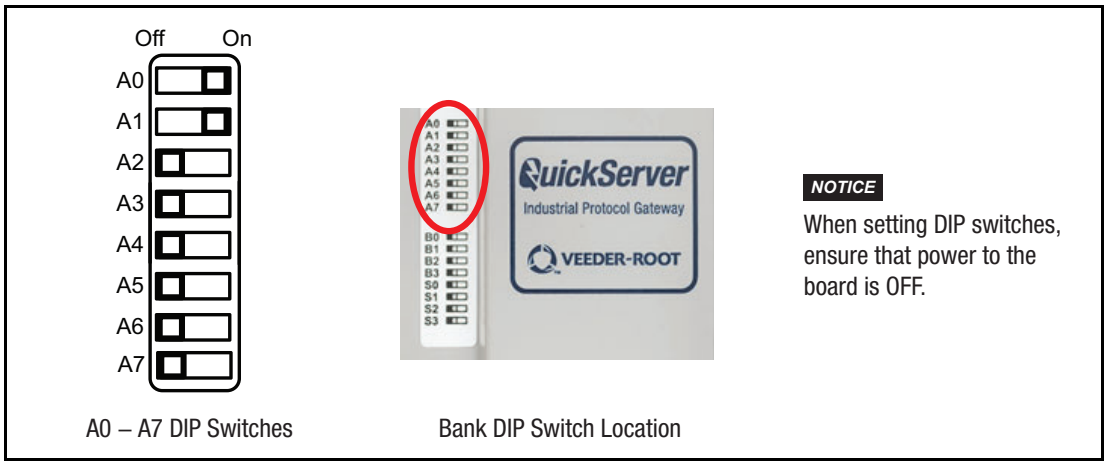

Figure 3. QuickServer A Bank DIP Switches

- Refer to Appendix C for the complete range of MAC Addresses and DIP switch settings.

5 MODBUS RTU AND MODBUS TCP/IP: SETTING THE NODE-ID

- The Modbus RTU and Modbus TCP/IP Node-IDs are assigned by setting the A-bank dip switches. (see Figure 3).
- Node-ID’s range from 1-255. Refer to Appendix C for the full range of addresses for setting Node-ID.

6 BACNET MS/TP OR MODBUS RTU: SETTING THE BAUD RATE FOR BMS NETWORK

DIP switches B0 – B3 can be used to set the field baud rate of the QuickServer to match the baud rate required by the BMS for BACnet MS/TP (see Figure 4).

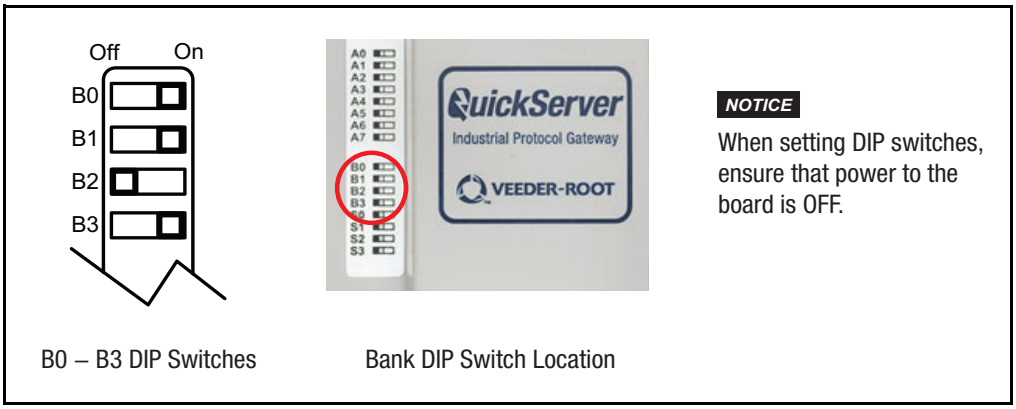

Figure 4. QuickServer B Bank DIP Switches

BMS baud rate dip switch selections are shown in Table 5.

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Table 5. BMS Baud Rate

Baud Rate	B0	B1	B2	B3
9600	On	On	On	Off
19200	Off	Off	Off	On
38400*	On	On	Off	On
57600	Off	Off	On	On
76800	On	Off	On	On

*Factory default setting.

Interfacing QuickServer To Devices

QuickServer ProtoNode Showing Connection Ports

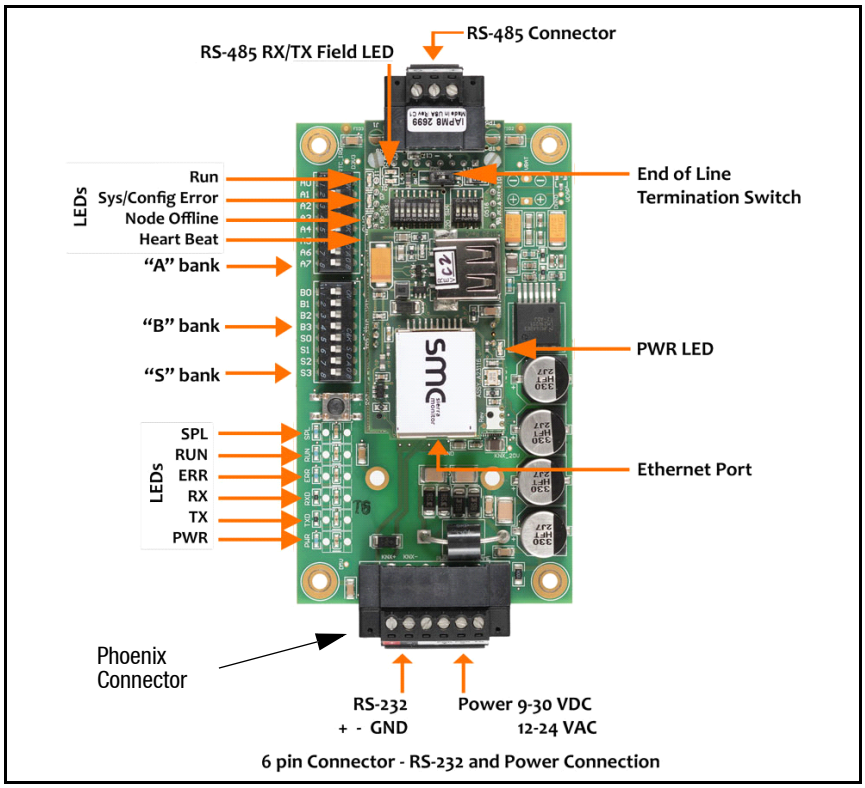

Figure 5. QuickServer ProtoNode Connections

Device Connections To QuickServer

7 QUICKSERVER 6-PIN PHOENIX CONNECTOR

- Pins 1 - 3 are for Veeder-Root ATG input (see Figure 6).
- Pins 4 - 6 are for QuickServer power. QuickServer accepts either 9-30V DC or 12-24V AC on pins 4 and 5.

NOTICE **Do not power up QuickServer at this time.**

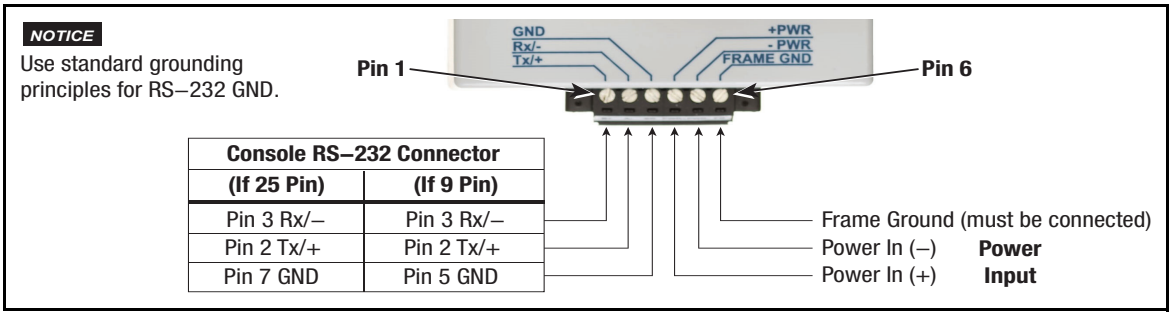

Figure 6. QuickServer ATG RS-232 and Power Inputs

8 SERIAL NETWORK WIRING FIELD PORT TO RS-485 NETWORK

- Connect the RS-485 network wires to the 3-pin RS-485 connector on QuickServer ProtoNode as shown in Figure 7.

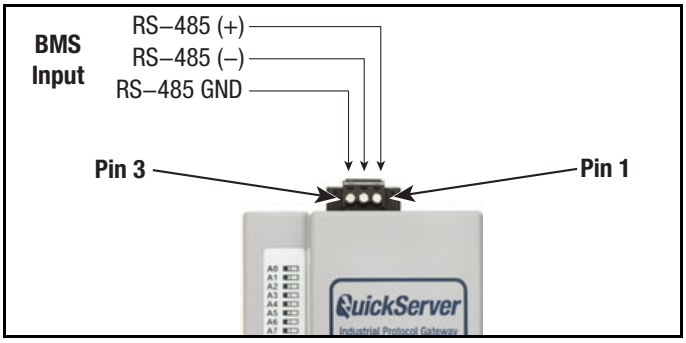

Figure 7. QuickServer Connection To RS-485 Field Network

- See “Ethernet Network - Setting IP Address For Field Network” on page 17. for information on connecting to BACnet/IP network.
- If the QuickServer is the last device on the trunk, then the End-Of-Line Termination Switch needs to be set to the **On** position (the EOL Termination **default setting is Off**). If necessary, set the switch to the On position (see Figure 8).

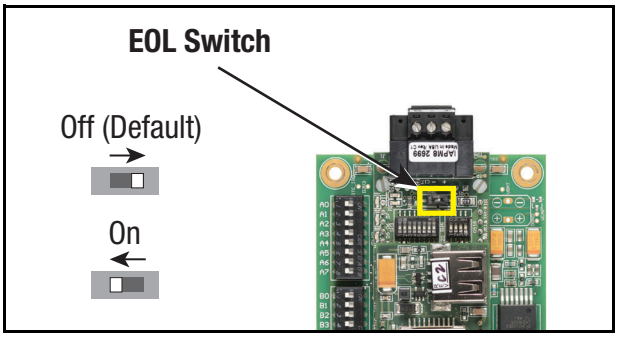

Figure 8. QuickServer RS-485 BMS Network EOL Switch Settings

9 Power Up QuickServer

Verify QuickServer nominal power requirements in Table 6.

Table 6. QuickServer Current Draw

QuickServer ProtoNode	Current Draw		
	12V DC/AC	24V DC/AC	30V DC
Typical	170 mA	100 mA‘	80 mA
Maximum	240 mA	140 mA	100 mA

NOTICE **These values are ‘nominal’ and a safety margin should be added to the power supply of the host system. A safety margin of 25% is recommended.**

After verifying power source and with frame ground connected as shown in Figure 6. apply power to QuickServer.

Using QuickServer Web Configurator To Setup The Gateway

10 Connect The PC To QuickServer Via The Ethernet Port

- Connect a CAT5 Ethernet cable (Straight through or Cross-Over) between the local PC and QuickServer.
- The Default IP Address of QuickServer is 192.168.1.24, subnet mask is 255.255.255.0. If the PC and QuickServer are on different IP Networks, assign a static IP Address to the PC on the 192.168.1.xxx network:

  For Windows 10, Right click on  . Then click on Network Connections>Change Adapter Options. Double click on Local Area Connections. When the Local Area Connections Status box appears click Properties. Click on Internet Protocol Version 4 (TCP/IPv4) then click Properties. When the Internet Protocol Version 4 (TCP/IPv4) Properties dialog box appears, click, 'Use the following IP address' radio button and enter the 'IP address' and 'Subnet mask' entries shown in Figure 9, the click the OK button , then the Close buttons to exit.

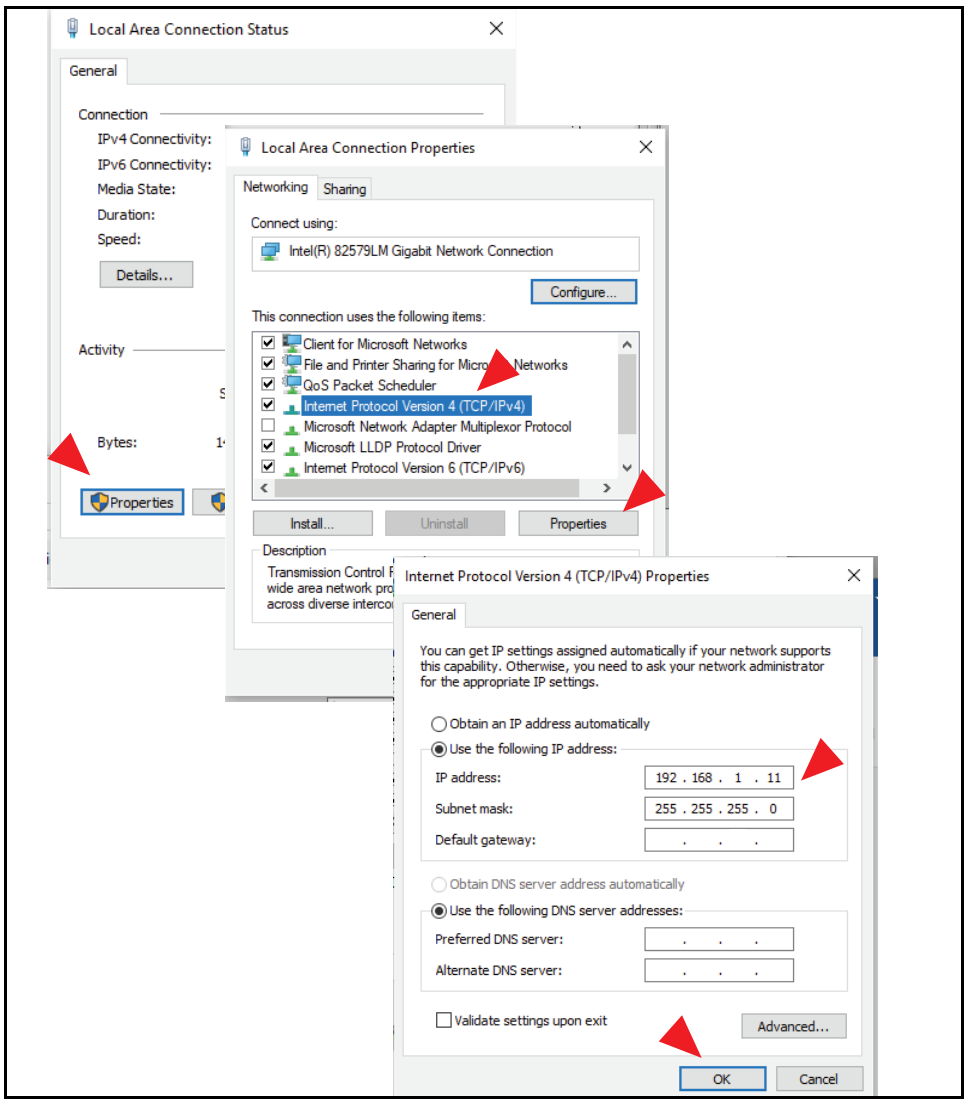

Figure 9. Assigning Static IP Address To The PC

After disconnecting from the QuickServer return to the PC's Internet Protocol Version 4 (TCP/IPv4) Properties dialog box and click the Obtain an IP Address Automatically' radio button to return the PC to its original Local Area Connection settings.

Connecting to QuickServer Web Configurator

After setting a local PC on the same subnet as the QuickServer (refer to above paragraph), open a web browser on the PC and enter the IP Address of the QuickServer (the default address is 192.168.1.24).

NOTICE **If the IP Address of the QuickServer was changed, the assigned IP Address can be discovered using the FS Toolbox utility. See 'Lost Or Incorrect IP Address' (Appendix A, page A-1) for instructions.**

Selecting Profiles for Devices Connected to QuickServer

- In the Web Configurator, the Active Profiles are shown below the Configuration Parameters.
- Fill in the parameter values as needed.
  - Enter the Veeder-Root PLC Type and COM settings.

    NOTICE **See "Input COM Settings on the device connected to the QuickServer" on page 6 for correct COM settings per PLC Type.**

  - Once a parameter value is changed as desired click Submit to save it.
- The Active profiles section lists the currently active device profiles, including previous Web Configurator additions. This list is empty for new installations, or after clearing all configurations (see Figure 10).
- To add an active profile to support a device, click the Add button under the Active Profiles heading. This will present a drop-down box underneath the Current profile column that lists all the available profiles (see Figure 11).
- Once the profile for the device has been selected from the drop-down list, enter the value of the Node-ID.

  NOTICE **The first entered Node-ID must be set to "1" and be followed by sequential values.**
- Then enter the Address Parameter. The Address is used to specify the tank, sensor or input number. This information can be found in the Veeder-Root ATG Report.
  - Tanks are addressed from 1-12.
  - Sensors are addressed from 1-64.
  - Inputs are addressed from 1-64.
- Then press the "Submit" button to add the Profile to the list of devices to be configured.
- Repeat this process until all the devices have been added.

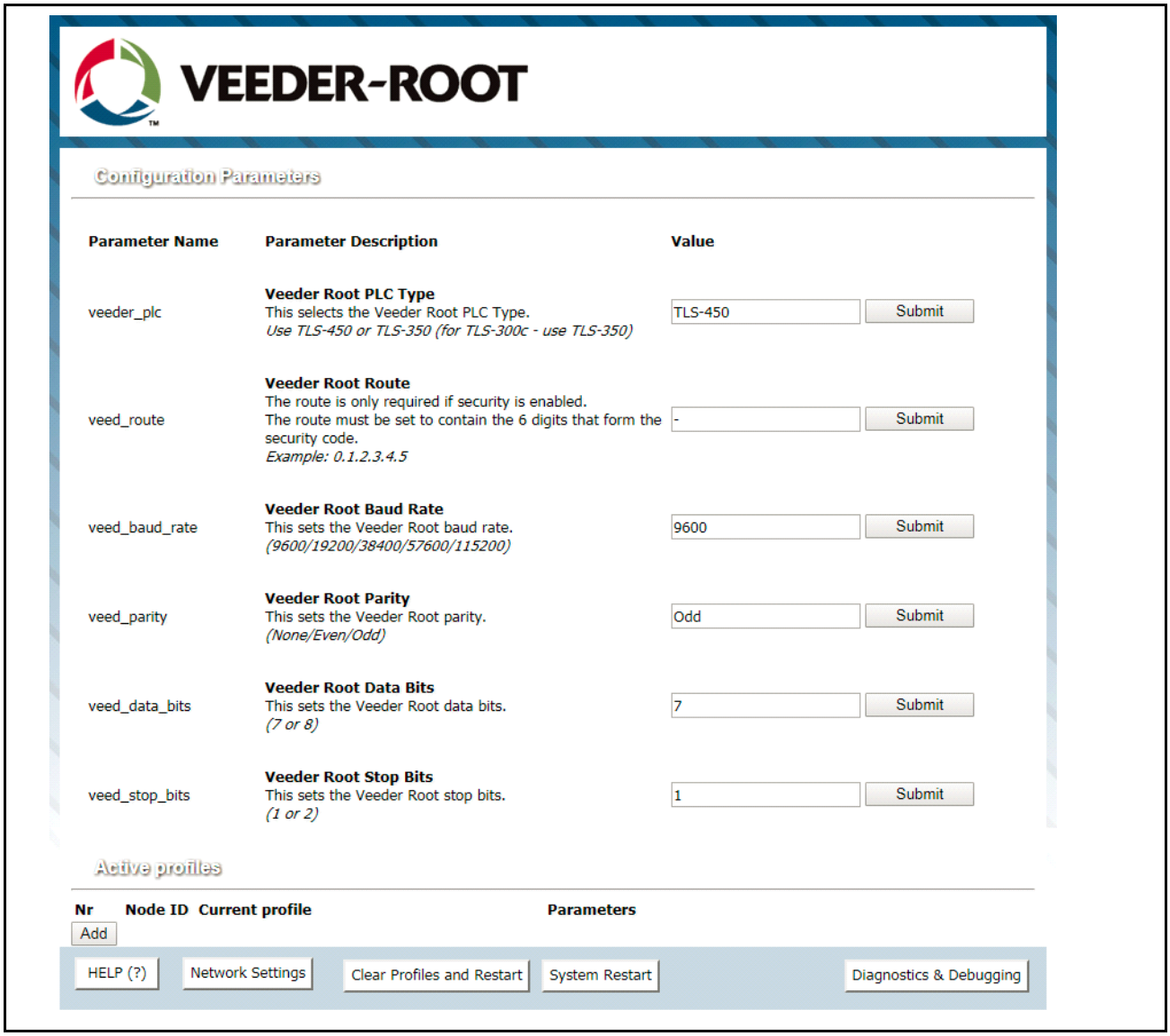

Figure 10. Web Configurator Showing No Active Profiles

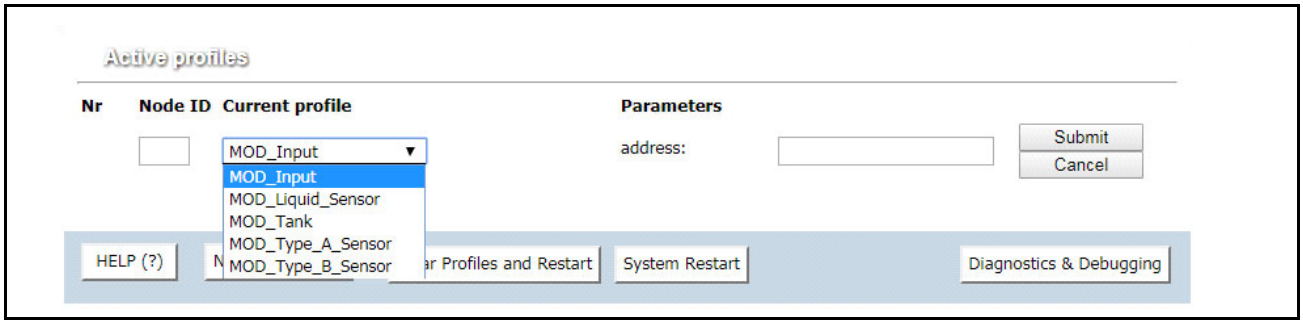

Figure 11. Web Configurator Showing Available Profiles For Selection

- Completed additions are listed under “Active Profiles” as shown the Figure 12 example.

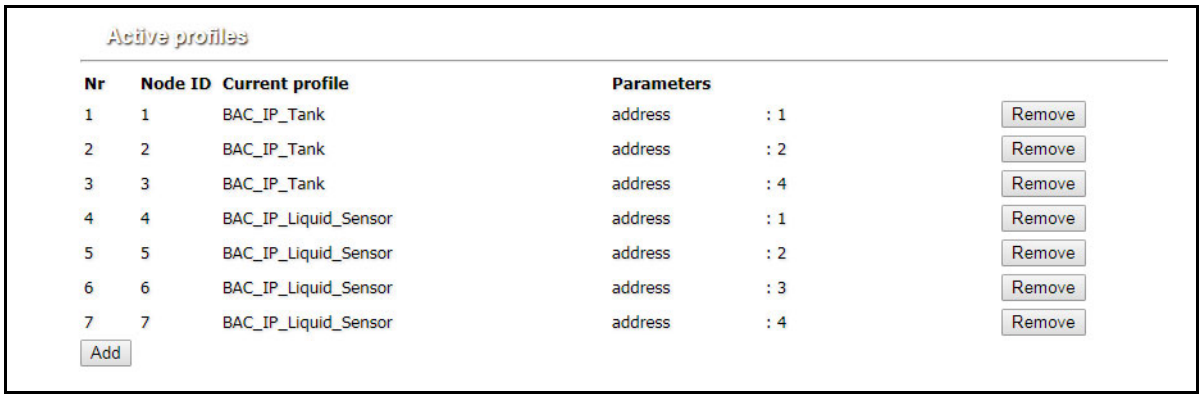

Figure 12. Web Configurator Showing Active Profile Additions

Figure 12 shows a console with 3 tanks and 4 liquid sensors. The node IDs are sequential, starting with 1; the addresses match the console numbering of the tanks (i.e., there is no tank 3 set up in the console). The Node ID is used for the BACnet Object or Modbus Register (see Appendix B) and its address must match the device number programmed in the console.

NOTICE **System and Unknown Type points are automatically configured therefore no profile is required. Refer to Table B-1 and Table B-2 in Appendix B for a list of available points.**

11 Setting BACnet Parameters

- Open the Web Configurator with the protocol set to BACnet in “Selecting The Desired Protocol Configuration” on page 6.
- Fill in the parameter values as needed (see Figure 13).
  - Enter the Veeder-Root PLC Type, COM settings and BACnet settings (Bac_device_id)

    NOTICE **See See “Input COM Settings on the device connected to the QuickServer” on page 6. for correct COM settings per PLC Type.**

    The Bac_device_id field will display the current value (default = 50,000). The BACnet Device Instance can range from 1 to 4,194,303.
  - Once a parameter value is changed as desired click Submit to save it.

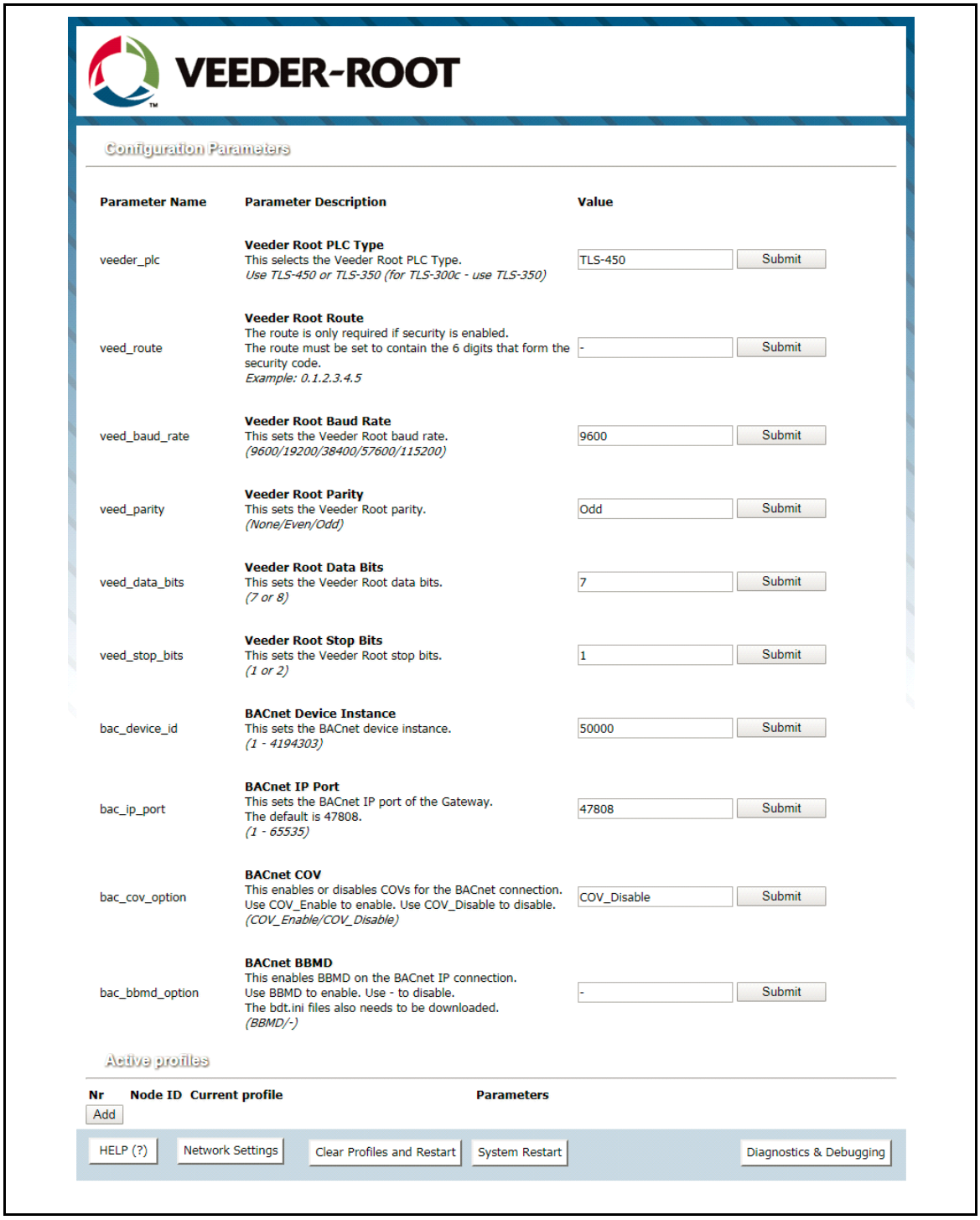

Figure 13. Web Configurator with Protocol Set to BACnet

12 Ethernet Network - Setting IP Address For Field Network

- After setting a local PC to the same subnet as the QuickServer (See “Connect The PC To QuickServer Via The Ethernet Port” on page 12., open a web browser on the PC and enter the IP Address of the QuickServer; the default address is 192.168.1.24.
- The Web Configurator is displayed as the landing page (see Figure 14).
- To access the FS-GUI, click on the “Diagnostics & Debugging” button in the bottom right corner of the page.

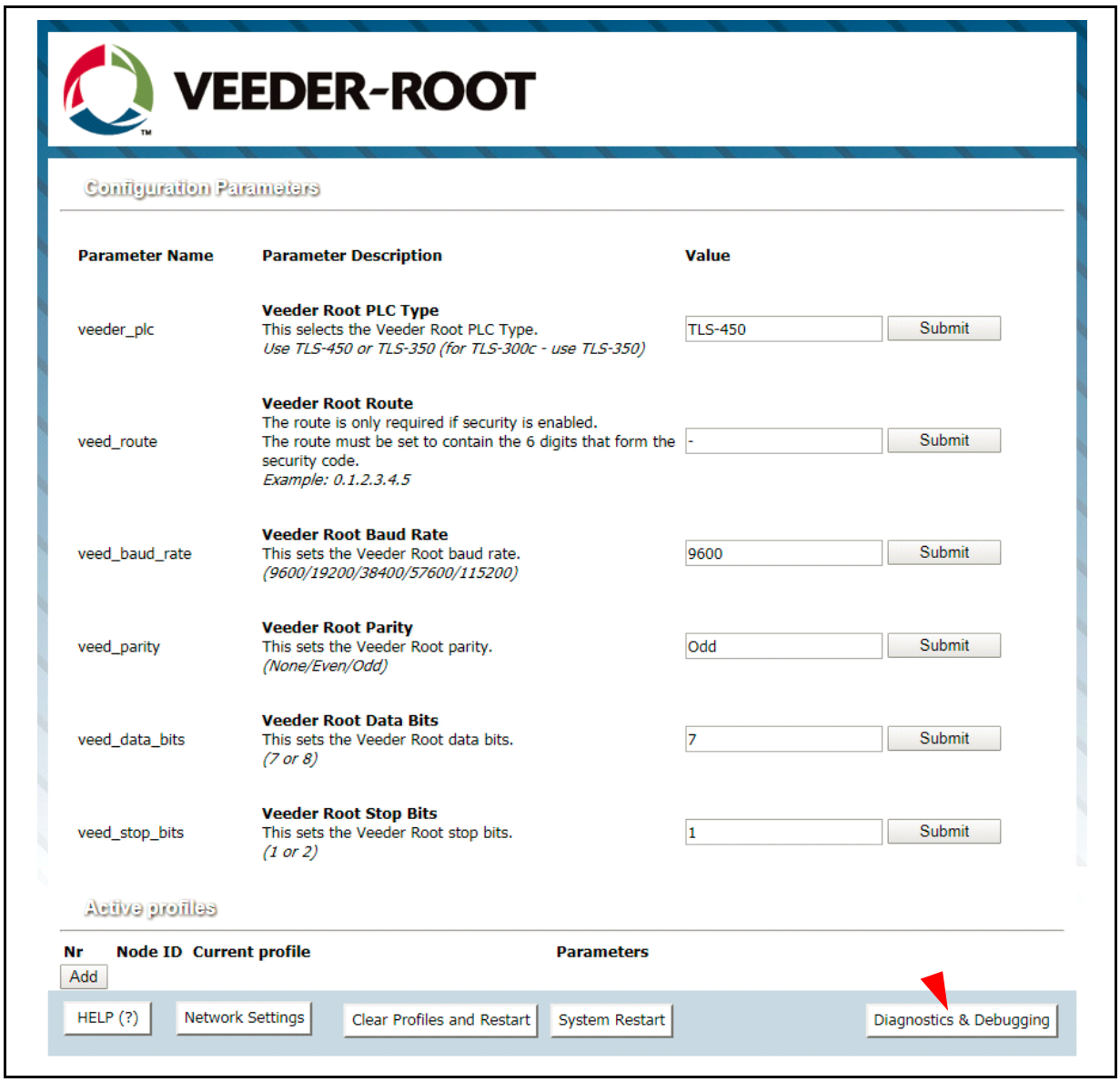

Figure 14. Web Configurator Screen With Active Profiles

- 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 (see Figure 15).

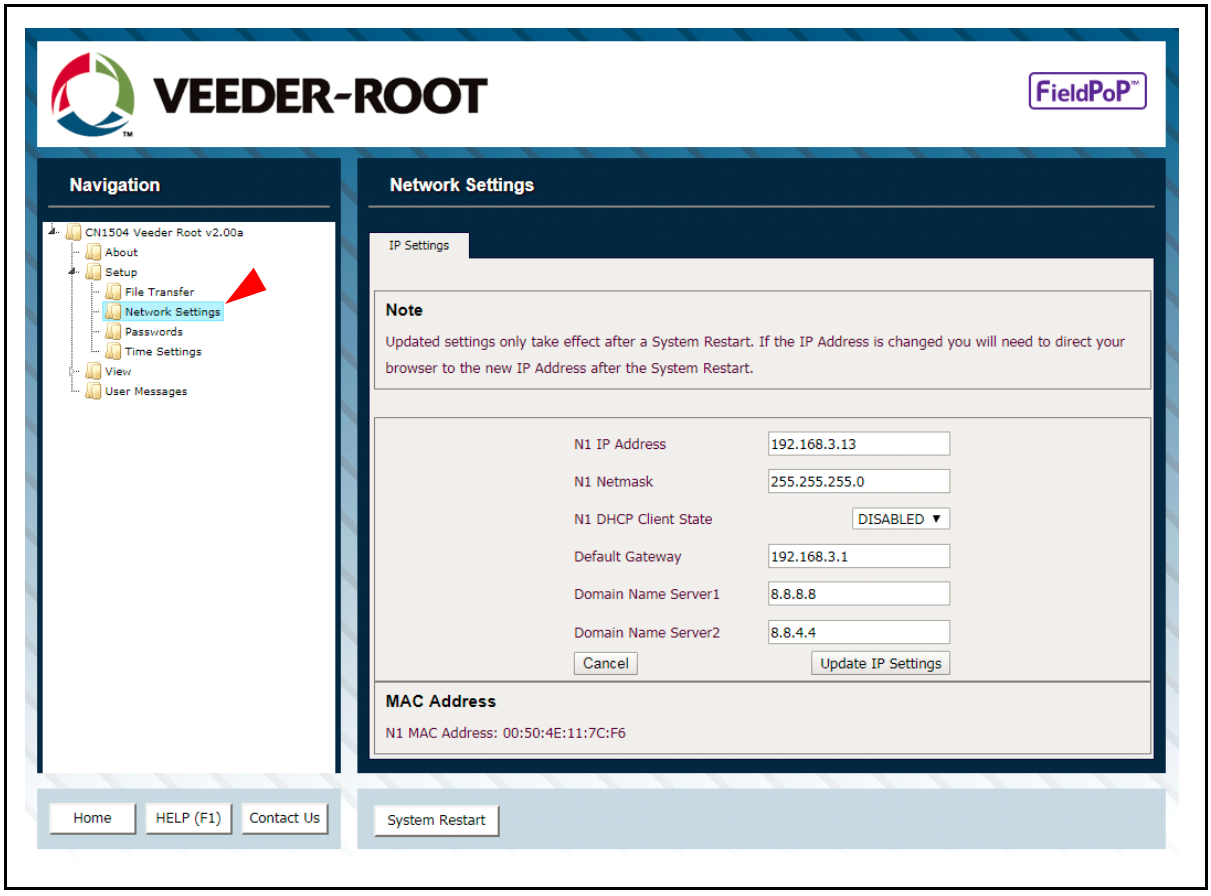

Figure 15. Changing IP Address Via FS-GUI

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

NOTICE **If the QuickServer is connected to a managed switch/router, the IP Gateway of the QuickServer 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 QuickServer.

•Unplug Ethernet cable from PC and connect it to the network switch or router.

•Record the IP Address assigned to the QuickServer for future reference.

NOTICE **The FieldPoP™ button FieldPoP (see Figure 15) allows users to connect to FieldPoP, Sierra Monitor's device cloud solution for the IIoT. FieldPoP enables secure remote connection to field devices through a FieldServer and its local applications for configuration, management, maintenance. For more information about FieldPoP, refer to the FieldPoP™ Device Cloud Start-up Guide.**

How To Start The Installation Over: Clearing Profiles

1. After setting a local PC to the same subnet as the QuickServer ("Connect The PC To QuickServer Via The Ethernet Port" on page 12), open a web browser on the PC and enter the IP Address of the QuickServer.
2. If the IP Address of the QuickServer has been changed by previous configuration, the assigned IP Address must be gathered from the network administrator.
3. The Web Configurator is displayed as the landing page.
4. At the bottom-left of the page, click the "Clear Profiles and Restart" button.
5. Once restart is complete, all past profiles discovered and/or added via Web configurator are deleted. The unit can now be reinstalled.

BACnet EXPLORER NG

A typical working example of a BACnet Explorer NG on a BACnet Network (see Figure 16).

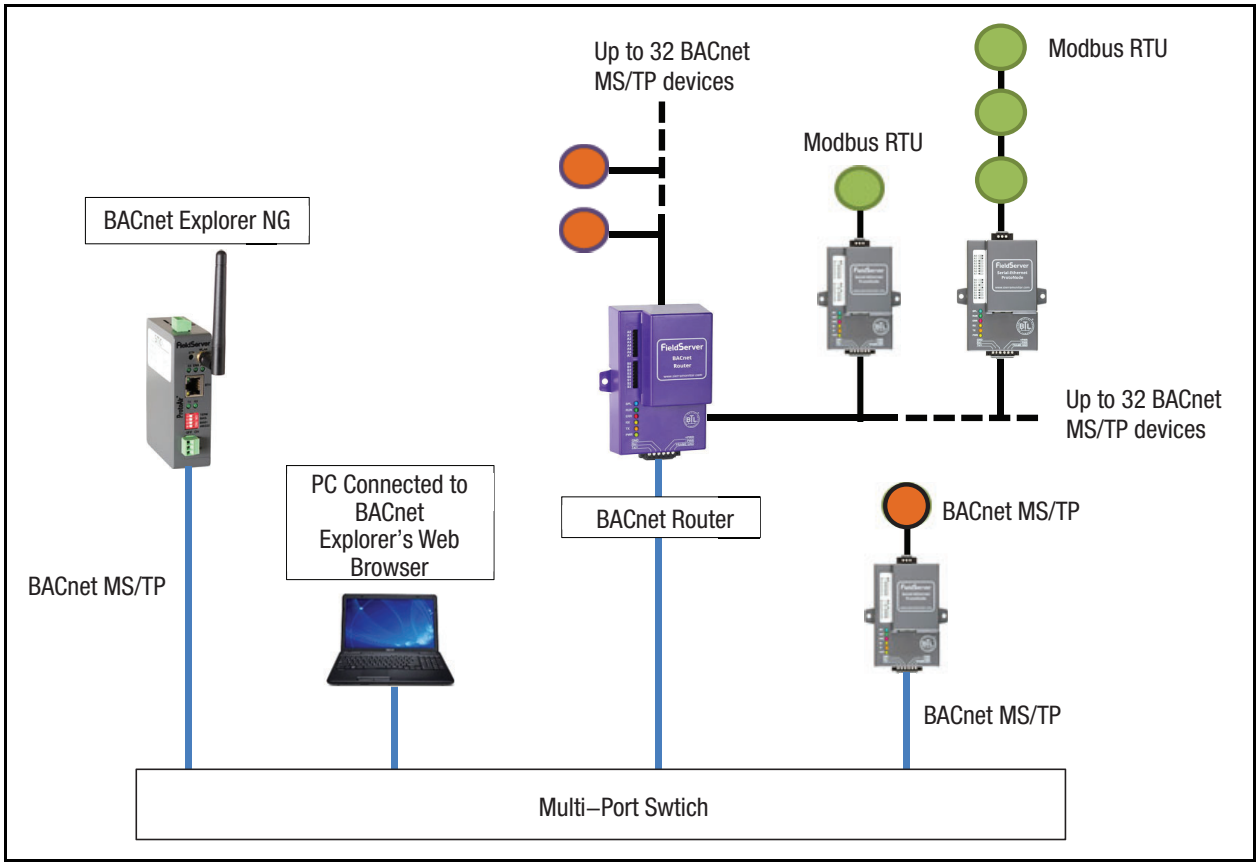

Figure 16. BACnet Explorer NG On A BACnet Network

- For additional details related to the BACnet Explorer NG, go to the Sierra Monitor website's Resource Center and download the BACnet Explorer NG Start-Up Guide.
- For purchasing information, look up the BACnet Explorer NG page on the Sierra Monitor website and click on the "BUY NOW" tab.

Appendix A: Troubleshooting

Lost Or Incorrect IP Address

1. Ensure that FieldServer Toolbox is loaded onto the local PC. Otherwise, download the FieldServer Toolbox.zip via the Sierra Monitor Resource Center at *https://www.sierramonitor.com/content/fieldserver-toolbox-0*
2. Extract the executable file and complete the installation.

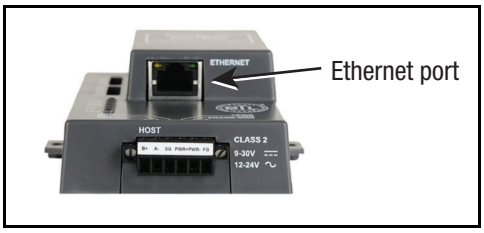

Figure A-1. Ethernet Port Location

3. Connect a standard CAT5 Ethernet cable between the user's PC and QuickServer.
4. Double click on the FS Toolbox Utility and click Discover Now on the splash page.
5. Check for the IP Address of the desired gateway.

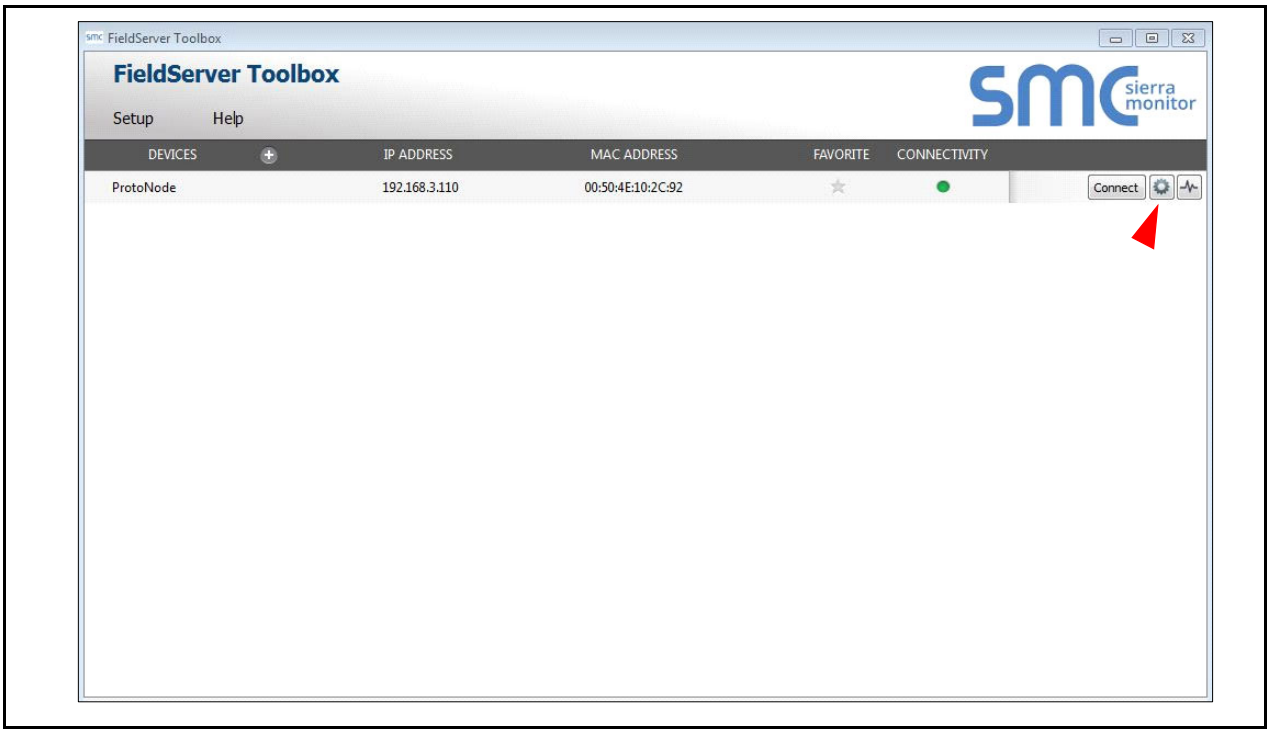

Figure A-2. Check IP Address

6. If correcting the IP Address of the gateway: click the settings icon on the same row as the gateway (see Figure A-2), then click Network Settings, change the IP Address and click Update IP Settings to save.

Viewing Diagnostic Information

1. Type the IP Address of the QuickServer into the web browser or use the FieldServer Toolbox to connect to the QuickServer.
2. Click on Diagnostics and Debugging Button, then click on view, and then on connections.
3. If there are any errors showing on the Connection page, refer to "Check Wiring And Settings" below for the relevant wiring and settings.

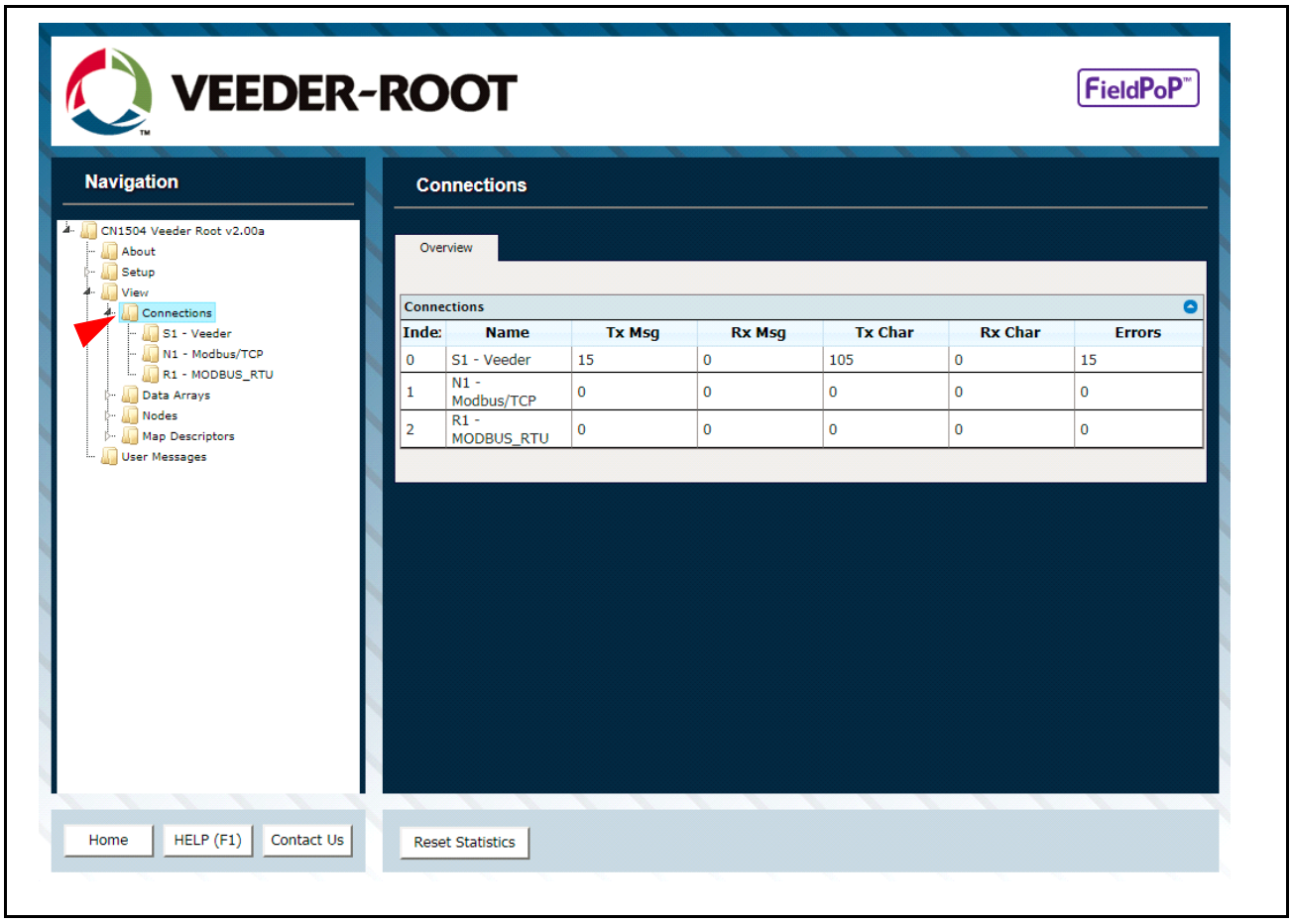

Figure A-3. Error Messages Screen

Check Wiring And Settings

- No COMS on Veeder-Root Interface 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 QuickServer (See "LED Diagnostics For Communications Between QuickServer And Devices" on page A-3.)

- Check baud rate, parity, data bits, stop bits
- Check device address
- Verify wiring
- Verify device is connected to the same subnet as the QuickServer
- Verify the Modbus device was discovered in Web Configurator (See “Connecting to QuickServer Web Configurator” on page 13.).

• Field COM problems:

- If Ethernet protocols are used, observe Ethernet LEDs on the QuickServer (See “LED Diagnostics For Communications Between QuickServer And Devices” below).
- Check DIP switch settings (using correct baud rate and device instance)
- Verify IP Address setting
- Verify wiring

NOTICE **If the problem persists, a Diagnostic Capture needs to be taken and sent to support. (See “Take Diagnostic Capture With The FieldServer Toolbox” on page A-4.).**

LED Diagnostics For Communications Between QuickServer And Devices

Reference Figure A-4 and Table A-1 for understanding QuickServer ProtoNode diagnostic LEDs.

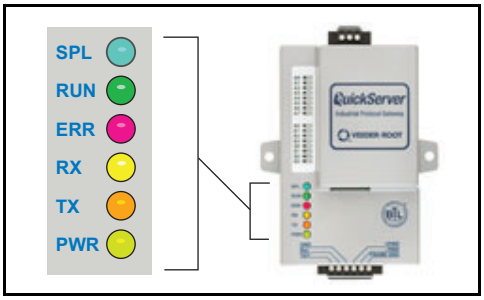

Figure A-4. Ethernet Port Location

Table A-1. Diagnostic LED Descriptions

LED	Description
SPL	The SPL LED will light if the unit is not getting a response from one or more of the configured devices.
RUN	The RUN LED will start flashing 20 seconds after power indicating normal operation.
ERR	The SYS ERR LED will go on solid 15 seconds after power up. It will turn off after 5 seconds. A steady red light will indicate there is a system error on the unit. If this occurs, immediately report the related “system error” shown in the error screen of the GUI interface to support for evaluation.
RX	The RX LED will flash when a message is received on the serial port on the 6-pin connector. If the serial port is not used, this LED is non-operational.
TX	The TX LED will flash when a message is sent on the serial port on the 6-pin connector. If the serial port is not used, this LED is non-operational.
PWR	This is the power light and should show steady green at all times when unit is powered.

Take Diagnostic Capture With The FieldServer Toolbox

NOTICE **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 Sierra Monitor Resource Center Software Downloads. Reference Figure A-1.
- Extract the executable file and complete the installation.
- Connect a standard CAT5 Ethernet cable between the PC and QuickServer.
- Double click on the FS Toolbox Utility.

1. Take a log

   a.Click on the diagnose icon of the desired device.

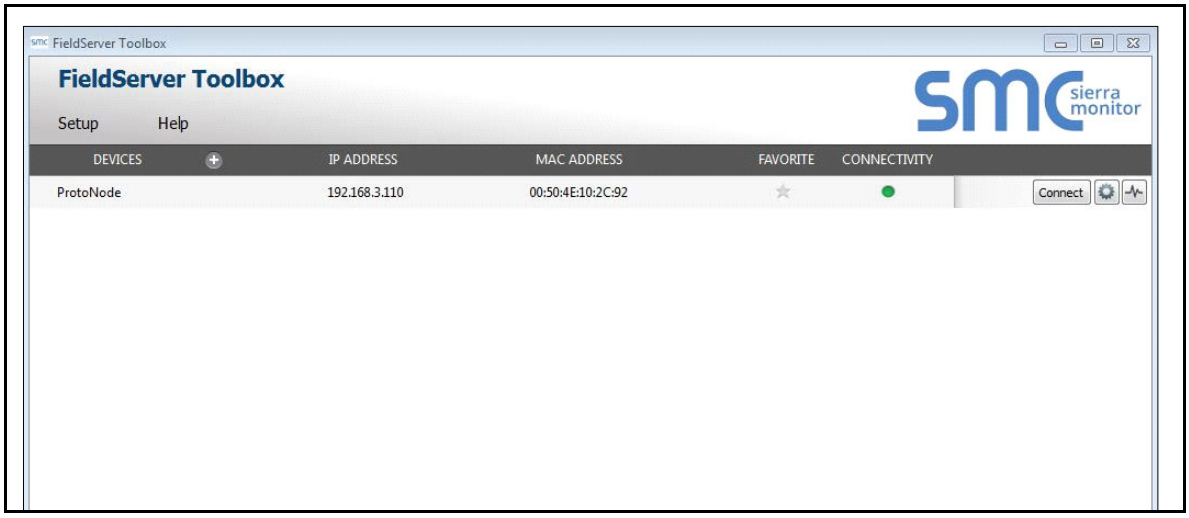

Figure A-5. FS Toolbox Utility Screen

   b.Ensure “Full Diagnostic" is selected (this is the default).

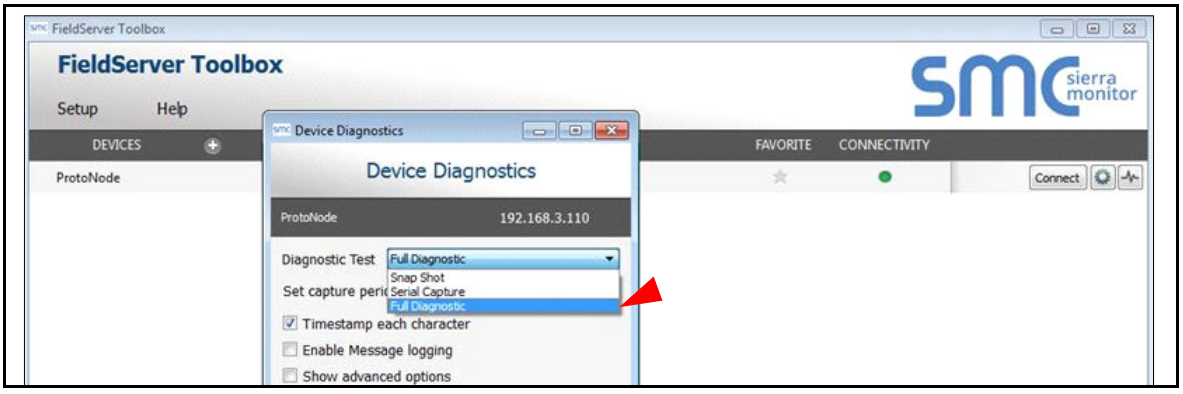

Figure A-6. Selecting Full Diagnostic For Selected Device

NOTICE **If desired, the default capture period can be changed.**

c.Click on ‘Start Diagnostic’.

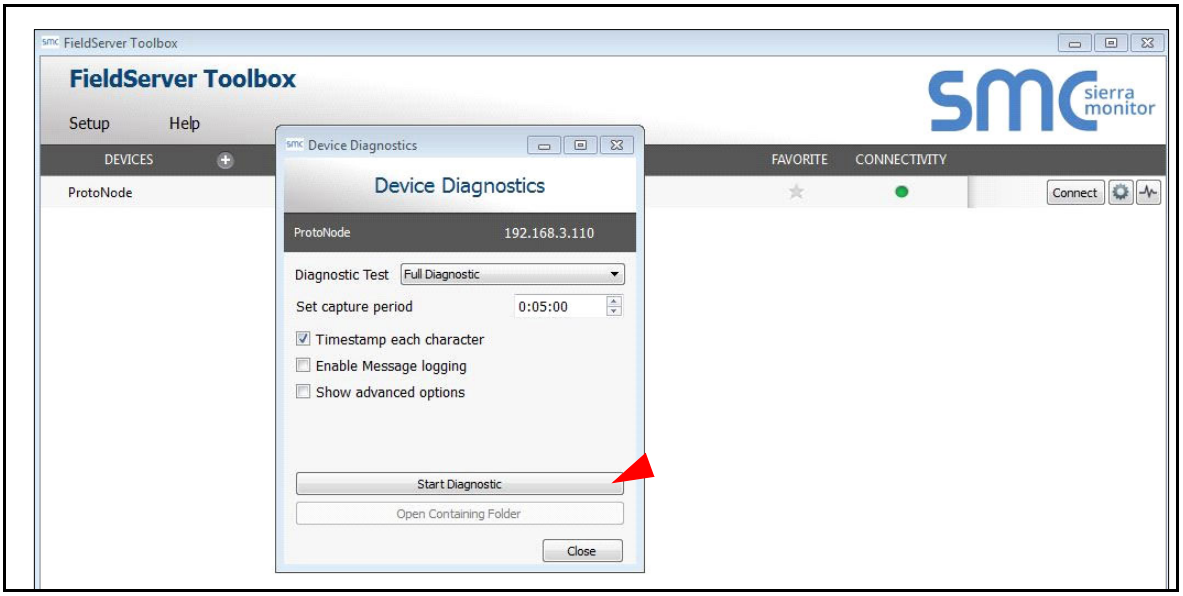

Figure A-7. Selecting Start Diagnostic For Selected Device

d.When the capture period is finished, the “Diagnostic Test Complete” window will appear

2. Send Log

a.Once the diagnostic test is complete, a zip file is saved on the PC.

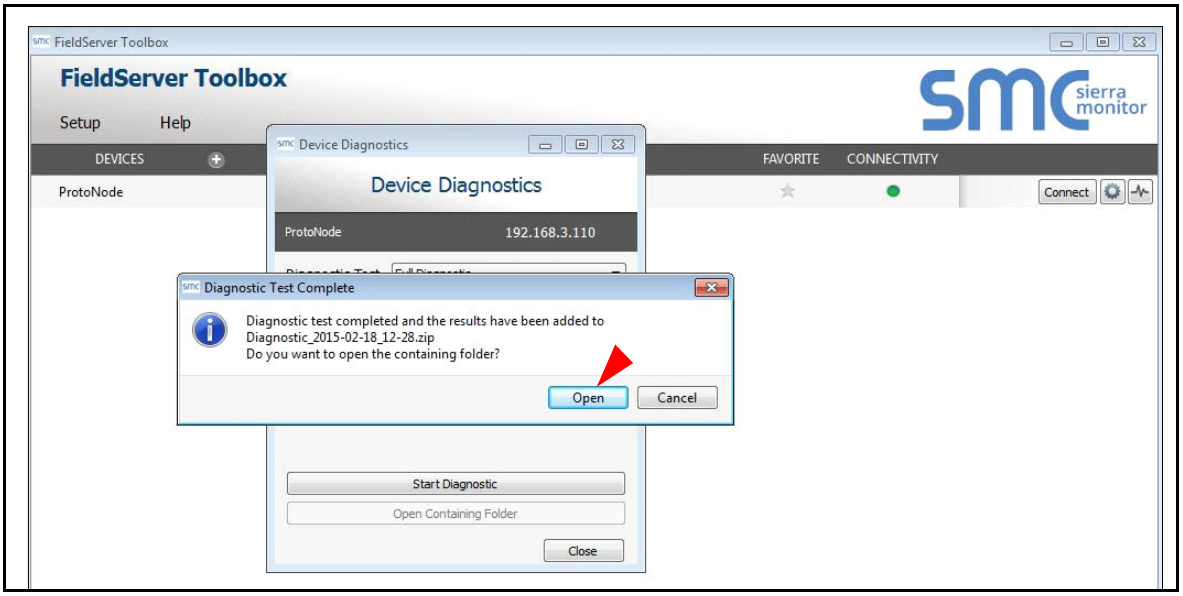

Figure A-8. Launching Explorer To Located Device’s Diagnostic File

b.Choose ‘Open’ to launch explorer and have it point directly at the correct folder.

c.Send the Diagnostic zip file to technical support (*technicalsupport@veeder.com*).

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 (See "Lost Or Incorrect IP Address" on page A-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 "General" tab
5. In the General tab, click on "Choose Files" and select the web.img file extracted in Step 1.
6. Click on the orange "Submit" button.

Unknown Alarm Category

If the ProtoNode receives an alarm and or device ID that it does not recognize, it will be stored in the DA_UNKCAT data array. Only the last device ID, Alarm ID, and address will be stored.

Securing QuickServer With Passwords

Access to the QuickServer can be restricted by enabling a password on the FS-GUI Passwords page – click Setup and then Passwords in the navigation panel. There are 2 access levels defined by 2 account names: Admin and User.

- The Admin account has unrestricted access to the QuickServer.
- The User account can view any QuickServer information, but cannot make any changes or restart the QuickServer.

The password needs to be a minimum of eight characters and is case sensitive.

If the password is lost, click cancel on the password authentication popup window (see Figure A-9), and email the password recovery token (see Figure A-10) to technical support to receive a temporary password from the support team. Access the QuickServer to set a new password.

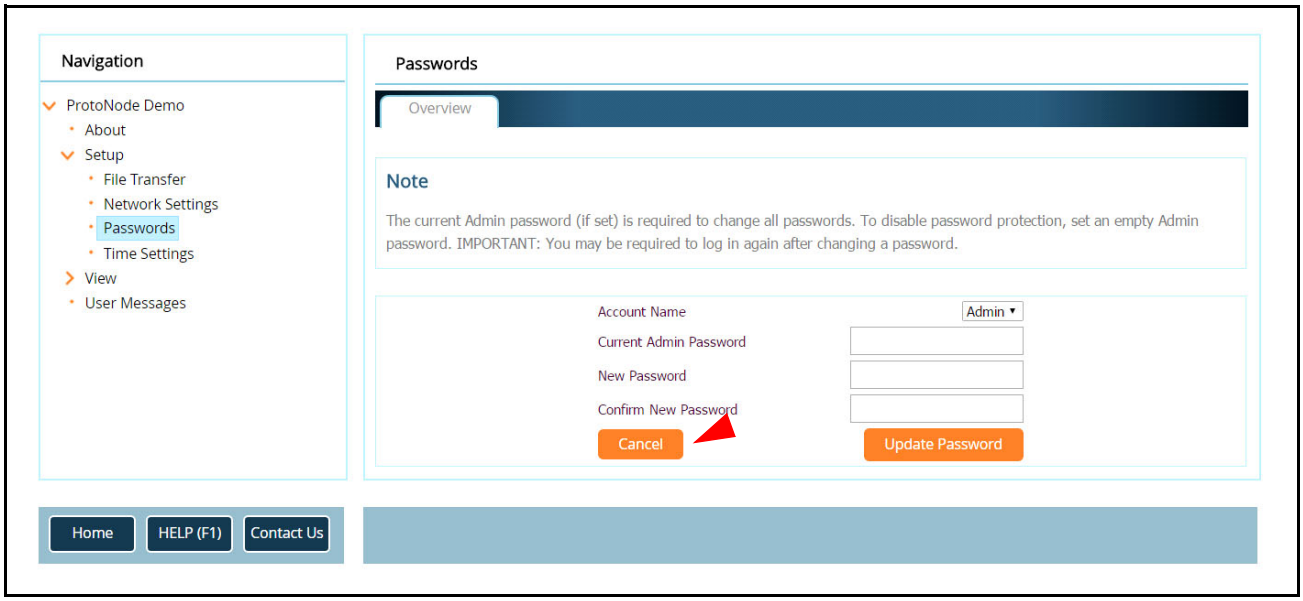

Figure A-9. FS-GUI Passwords Page

Figure A-10. Password Recovery Page

Appendix B: Vendor Information – Veeder-Root

The ProtoNode provides capability to support any Veeder-Root serial command by defining customized map descriptors for any command or data type. Refer to Appendix A of the 577014-368 QuickServer Industrial Protocol Gateway Installation And Setup manual. Appendix A (Security Code) of the same manual also contains instructions on using a Security Code for the TLS communications port.

Interface To BACnet & Modbus Tables

NOTICE **An X in the BACnet Object ID or Modbus Register represents a one- or two-digit number that equals the Node ID. In the Liquid Sensor X Fuel Alarm examples below, with a Node ID of 3, the X will be 3; for a Node ID of 11, the X will be 11.**

Point Name	Node ID	BACnet Object ID (X002)	Modbus Register (10X02)
Sensor X Fuel Alarm	3	**3**002	10**3**02
Sensor X Fuel Alarm	11	**11**002	10**11**02

Table B-1. System Veeder-Root Interface To BACnet And Modbus

Point Name	BACnet Object Type	BACnet Object ID	Modbus Register
Printer out of Paper	BI	1	10001
Printer Error	BI	2	10002
EEPROM Configuration Error	BI	3	10003
Battery Off	BI	4	10004
Too Many Tanks	BI	5	10005
System Security Warning	BI	6	10006
ROM Revision Warning	BI	7	10007
Remote Display Communications Error	BI	8	10008
Autodial Error	BI	9	10009
Software Module Warning	BI	10	10010
Tank Test Shutdown Warning	BI	11	10011
Protective Cover Alarm	BI	12	10012
BIR Shift Close Pending	BI	13	10013
BIR Daily Close Pending	BI	14	10014
PC(H8) Revision Warning	BI	15	10015
System Self Test Error	BI	16	10016
System Clock Incorrect Warning	BI	17	10017
System Device Poll Timeout	BI	18	10018
Maintenance Tracker NVMem	BI	19	10019
Maintenance Tracker Communication Module	BI	20	10020
Database Error	BI	21	10021
File System Error	BI	22	10022
BIR Status Warning	BI	23	10023
VR Bus Power Outage Warning	BI	24	10024
Software Upgrade Failure Alarm	BI	25	10025
iButton Fault Warning	BI	26	10026
iButton Fault Alarm	BI	27	10027
Version Upgrade Available	BI	28	10028
Expansion Box Unsupported	BI	29	10029

Table B-2. Unknown_Type Veeder-Root Interface Mappings To BACnet And Modbus

Point Name	BACnet Object Type	BACnet Object ID	Modbus Register
Unknown Device Address	AI	1	30001
Unknown Alarm Category	AI	2	30002
Unknown Alarm Type	AI	3	30003

Table B-3. Tank Veeder-Root Interface To BACnet And Modbus

Point Name	BACnet Object Type	BACnet Object ID	Modbus Register
Tank X Inventory Volume	AI	X001	30X01
Tank X Inventory TC Volume	AI	X002	30X02
Tank X Inventory Ullage	AI	X003	30X03
Tank X Inventory Height	AI	X004	30X04
Tank X Inventory Water	AI	X005	30X05
Tank X Inventory Temperature	AI	X006	30X06
Tank X Inventory Water Volume	AI	X007	30X07
Tank X Delivery Product Code	AI	X008	30X08
Tank X Delivery Number of Deliveries	AI	X009	30X09
Tank X Delivery Start Time from 01/01/1970	AI	X010	30X10
Tank X Delivery Stop Time from 01/01/1970	AI	X011	30X11
Tank X Delivery Starting Volume	AI	X012	30X12
Tank X Delivery Starting TC Volume	AI	X013	30X13
Tank X Delivery Starting Water	AI	X014	30X14
Tank X Delivery Starting Temp	AI	X015	30X15
Tank X Delivery Ending Volume	AI	X016	30X16
Tank X Delivery Ending TC Volume	AI	X017	30X17
Tank X Delivery Ending Water	AI	X018	30X18
Tank X Delivery Ending Temp	AI	X019	30X19
Tank X Delivery Starting Height	AI	X020	30X20
Tank X Delivery Ending Height	AI	X021	30X21
Tank X Tank Setup Warning	BI	X001	10X01
Tank X Tank Leak Alarm	BI	X002	10X02
Tank X High Water Alarm	BI	X003	10X03
Tank X Overfill Alarm	BI	X004	10X04
Tank X Low Limit Alarm	BI	X005	10X05
Tank X Theft Alarm	BI	X006	10X06
Tank X High Limit Alarm	BI	X007	10X07
Tank X Invalid Height Alarm	BI	X008	10X08
Tank X Probe Out Alarm	BI	X009	10X09
Tank X High Water Alarm	BI	X010	10X10
Tank X Delivery Needed	BI	X011	10X11
Tank X Maximum Level Alarm	BI	X012	10X12
Tank X Gross Leak Test Alarm	BI	X013	10X13
Tank X Monthly Leak Test Alarm	BI	X014	10X14
Tank X Annual Leak Test Alarm	BI	X015	10X15
Tank X Monthly Test Warning	BI	X016	10X16
Tank X Annual Test Warning	BI	X017	10X17
Tank X Monthly Test Alarm	BI	X018	10X18
Tank X Annual Test Alarm	BI	X019	10X19
Tank X Leak Test Active	BI	X020	10X20
Tank X No CSLD Idle Time Warning	BI	X021	10X21
Tank X Siphon Break Active Warning	BI	X022	10X22
Tank X CSLD Rate Increase Warning	BI	X023	10X23
Tank X AccuChart Calibration Warning	BI	X024	10X24
Tank X HRM Reconciliation Warning	BI	X025	10X25
Tank X HRM Reconciliation Alarm	BI	X026	10X26
Tank X Cold Temperature Warning	BI	X027	10X27
Tank X Missing Delivery Ticket Warning	BI	X028	10X28
Tank X Gross Leak Alarm	BI	X029	10X29
Tank X Delivery Density Warning	BI	X030	10X30
Tank X Density warning	BI	X031	10X31
Tank X Fuel Quality Alarm	BI	X032	10X32
Tank X Tank High Temperature Warning	BI	x033	10X33
Tank X Tank Low Temperature Warning	BI	x034	10X34
Tank X Density Offset Warning	BI	x035	10X35

Table B-4. Liquid Sensor Veeder-Root Interface Mappings To BACnet And Modbus

Point Name	BACnet Object Type	BACnet Object ID	Modbus Register
Sensor X Setup Data Warning	BI	X001	10X01
Sensor X Fuel Alarm	BI	X002	10X02
Sensor X Out Alarm	BI	X003	10X03
Sensor X Short Alarm	BI	X004	10X04
Sensor X Water Alarm	BI	X005	10X05

Sensor X Water Out Alarm	BI	X006	10X06
Sensor X High Liquid Alarm	BI	X007	10X07
Sensor X Low Liquid Alarm	BI	X008	10X08
Sensor X Liquid Warning	BI	X009	10X09

Table B-5. Input Veeder-Root Interface To BACnet And Modbus

Point Name	BACnet Object Type	BACnet Object ID	Modbus Register
Input X Input Setup Data Warning	BI	X001	10X01
Input X Input Normal	BI	X002	10X02
Input X Input Alarm	BI	X003	10X03
Input X Generator Off	BI	X004	10X04
Input X Generator On	BI	X005	10X05
Input X Input Out Alarm	BI	X006	10X06

Table B-6. Type A Sensor Veeder-Root Interface To BACnet And Modbus

Point Name	BACnet Object Type	BACnet Object ID	Modbus Register
Type-A Sensor X Setup Data Warning	BI	X001	10X01
Type-A Sensor X Fuel Alarm	BI	X002	10X02
Type-A Sensor X Out Alarm	BI	X003	10X03
Type-A Sensor X Short Alarm	BI	X004	10X04
Type-A Sensor X Water Alarm	BI	X005	10X05

Table B-7. Type B Sensor Veeder-Root Interface To BACnet And Modbus

Point Name	BACnet Object Type	BACnet Object ID	Modbus Register
Type-B Sensor X Setup Data Warning	BI	X001	10X01
Type-B Sensor X Fuel Alarm	BI	X002	10X02
Type-B Sensor X Out Alarm	BI	X003	10X03
Type-B Sensor X Short Alarm	BI	X004	10X04
Type-B Sensor X High Liquid Alarm	BI	X005	10X05
Type-B Sensor X Liquid Warning	BI	X006	10X06

Table B-8. Vapor Sensor Veeder-Root Interface To BACnet And Modbus

Point Name	BACnet Object Type	BACnet Object ID	Modbus Register
Vapor Sensor X Setup Data Warning	BI	X001	10X01
Vapor Sensor X Fuel Alarm	BI	X002	10X02
Vapor Sensor X Out Alarm	BI	X003	10X03
Vapor Sensor X Short Alarm	BI	X004	10X04
Vapor Sensor X Water Alarm	BI	X005	10X05
Vapor Sensor X Water Out Alarm	BI	X006	10X06
Vapor Sensor X High Liquid Alarm	BI	X007	10X07
Vapor Sensor X Low Liquid Alarm	BI	X008	10X08
Vapor Sensor X Liquid Warning	BI	X009	10X09

Table B-9. Groundwater Sensor Veeder-Root Interface To BACnet And Modbus

Point Name	BACnet Object Type	BACnet Object ID	Modbus Register
Groundwater Sensor X Setup Data Warning	BI	X001	10X01
Groundwater Sensor X Fuel Alarm	BI	X002	10X02
Groundwater Sensor X Out Alarm	BI	X003	10X03
Groundwater Sensor X Short Alarm	BI	X004	10X04
Groundwater Sensor X Water Alarm	BI	X005	10X05
Groundwater Sensor X Water Out Alarm	BI	X006	10X06
Groundwater Sensor X High Liquid Alarm	BI	X007	10X07
Groundwater Sensor X Low Liquid Alarm	BI	X008	10X08
Groundwater Sensor X Liquid Warning	BI	X009	10X09

Table B-10. MAG Sensor Veeder-Root Interface To BACnet And Modbus

Point Name	BACnet Object Type	BACnet Object ID	Modbus Register
MAG Sensor X Setup Data Warning	BI	X001	10X01
MAG Sensor X Communication Alarm	BI	X002	10X02
MAG Sensor X Fault Alarm	BI	X003	10X03
MAG Sensor X Fuel Warning	BI	X004	10X04
MAG Sensor X Fuel Alarm	BI	X005	10X05
MAG Sensor X Water Warning	BI	X006	10X06
MAG Sensor X Water Alarm	BI	X007	10X07
MAG Sensor X High Liquid Warning	BI	X008	10X08
MAG Sensor X High Liquid Alarm	BI	X009	10X09
MAG Sensor X Low Liquid Warning	BI	X010	10X10
MAG Sensor X Low Liquid Alarm	BI	X011	10X11
MAG Sensor X Temperature Warning	BI	X012	10X12
MAG Sensor X Relay Active	BI	X013	10X13
MAG Sensor X Install Alarm	BI	X014	10X14

Table B-11. Smart Sensor Veeder-Root Interface To BACnet And Modbus

Point Name	BACnet Object Type	BACnet Object ID	Modbus Register
Smart Sensor X Setup Data Warning	BI	X001	10X01
Smart Sensor X Communication Alarm	BI	X002	10X02
Smart Sensor X Fault Alarm	BI	X003	10X03
Smart Sensor X Fuel Warning	BI	X004	10X04
Smart Sensor X Fuel Alarm	BI	X005	10X05
Smart Sensor X Water Warning	BI	X006	10X06
Smart Sensor X Water Alarm	BI	X007	10X07
Smart Sensor X High Liquid Warning	BI	X008	10X08
Smart Sensor X High Liquid Alarm	BI	X009	10X09
Smart Sensor X Low Liquid Warning	BI	X010	10X10
Smart Sensor X Low Liquid Alarm	BI	X011	10X11
Smart Sensor X Temperature Warning	BI	X012	10X12
Smart Sensor X Relay Active		X013	10X13
Smart Sensor X Install Alarm		X014	10X14
Smart Sensor X Fault Warning		X015	10X15
Smart Sensor X Vacuum Warning		X016	10X16
Smart Sensor X No Vacuum Warning		X017	10X17

Table B-12. PLLD Veeder-Root Interface To BACnet And Modbus

Point Name	BACnet Object Type	BACnet Object ID	Modbus Register
PLLD X Setup Data Warning	BI	X001	10X01
PLLD X Gross Test Fail Alarm	BI	X002	10X02
PLLD X Annual Test Fail Alarm	BI	X003	10X03
PLLD X Periodic Test Needed Warning	BI	X004	10X04
PLLD X Periodic Test Needed Alarm	BI	X005	10X05
PLLD X Sensor Open Alarm	BI	X006	10X06
PLLD X High Pressure Alarm	BI	X007	10X07
PLLD X Shutdown Alarm	BI	X008	10X08
PLLD X High Pressure Warning	BI	X009	10X09
PLLD X Continuous Handle On Warning	BI	X010	10X10
PLLD X Periodic Test Fail Alarm	BI	X011	10X11
PLLD X Annual Test Needed Warning	BI	X012	10X12
PLLD X Annual Test Needed Alarm	BI	X013	10X13
PLLD X Low Pressure Alarm	BI	X014	10X14
PLLD X Sensor Short Alarm	BI	X015	10X15
PLLD X Continuous Handle On Alarm	BI	X016	10X16
PLLD X Fuel Out Alarm	BI	X017	10X17
PLLD X Line Equipment Alarm	BI	X018	10X18
PLLD X Gross Test Needed Alarm	BI	X019	10X19

Appendix C: “A” Bank DIP Switch Settings

Table C-1. A Bank DIP Switch Settings For Addresses 26-50

Address	A0	A1	A2	A3	A4	A5	A6
26	Off	On	Off	On	On	Off	Off
27	On	On	Off	On	On	Off	Off
28	Off	Off	On	On	On	Off	Off
29	On	Off	On	On	On	Off	Off
30	Off	On	On	On	On	Off	Off
31	On	On	On	On	On	Off	Off
32	Off	Off	Off	Off	Off	On	Off
33	On	Off	Off	Off	Off	On	Off
34	Off	On	Off	Off	Off	On	Off
35	On	On	Off	Off	Off	On	Off
36	Off	Off	On	Off	Off	On	Off
37	On	Off	On	Off	Off	On	Off
38	Off	On	On	Off	Off	On	Off
39	On	On	On	Off	Off	On	Off
40	Off	Off	Off	On	Off	On	Off
41	On	Off	Off	On	Off	On	Off
42	Off	On	Off	On	Off	On	Off
43	On	On	Off	On	Off	On	Off
44	Off	Off	On	On	Off	On	Off
45	On	Off	On	On	Off	On	Off
46	Off	On	On	On	Off	On	Off
47	On	On	On	On	Off	On	Off
48	Off	Off	Off	Off	On	On	Off
49	On	Off	Off	Off	On	On	Off
50	Off	On	Off	Off	On	On	Off

Table C-2. A Bank DIP Switch Settings For Addresses 51 - 75

Address	A0	A1	A2	A3	A4	A5	A6
51	On	On	Off	Off	On	On	Off
52	Off	Off	On	Off	On	On	Off
53	On	Off	On	Off	On	On	Off
54	Off	On	On	Off	On	On	Off
55	On	On	On	Off	On	On	Off
56	Off	Off	Off	On	On	On	Off
57	On	Off	Off	On	On	On	Off
58	Off	On	Off	On	On	On	Off
59	On	On	Off	On	On	On	Off
60	Off	Off	On	On	On	On	Off
61	On	Off	On	On	On	On	Off
62	Off	On	On	On	On	On	Off
63	On	On	On	On	On	On	Off
64	Off	Off	Off	Off	Off	Off	On
65	On	Off	Off	Off	Off	Off	On
66	Off	On	Off	Off	Off	Off	On
67	On	On	Off	Off	Off	Off	On
68	Off	Off	On	Off	Off	Off	On
69	On	Off	On	Off	Off	Off	On
70	Off	On	On	Off	Off	Off	On
71	On	On	On	Off	Off	Off	On
72	Off	Off	Off	On	Off	Off	On
73	On	Off	Off	On	Off	Off	On
74	Off	On	Off	On	Off	Off	On
75	On	On	Off	On	Off	Off	On

Table C-3. A Bank DIP Switch Settings For Addresses 76 - 100

Address	A0	A1	A2	A3	A4	A5	A6
76	Off	Off	On	On	Off	Off	On
77	On	Off	On	On	Off	Off	On
78	Off	On	On	On	Off	Off	On
79	On	On	On	On	Off	Off	On
80	Off	Off	Off	Off	On	Off	On
81	On	Off	Off	Off	On	Off	On
82	Off	On	Off	Off	On	Off	On
83	On	On	Off	Off	On	Off	On
84	Off	Off	On	Off	On	Off	On
85	On	Off	On	Off	On	Off	On
86	Off	On	On	Off	On	Off	On
87	On	On	On	Off	On	Off	On
88	Off	Off	Off	On	On	Off	On
89	On	Off	Off	On	On	Off	On
90	Off	On	Off	On	On	Off	On
91	On	On	Off	On	On	Off	On
92	Off	Off	On	On	On	Off	On
93	On	Off	On	On	On	Off	On
94	Off	On	On	On	On	Off	On
95	On	On	On	On	On	Off	On
96	Off	Off	Off	Off	Off	On	On
97	On	Off	Off	Off	Off	On	On
98	Off	On	Off	Off	Off	On	On
99	On	On	Off	Off	Off	On	On
100	Off	Off	On	Off	Off	On	On

Table C-4. A Bank DIP Switch Settings For Addresses 101-125

Address	A0	A1	A2	A3	A4	A5	A6
101	On	Off	On	Off	Off	On	On
102	Off	On	On	Off	Off	On	On
103	On	On	On	Off	Off	On	On
104	Off	Off	Off	On	Off	On	On
105	On	Off	Off	On	Off	On	On
106	Off	On	Off	On	Off	On	On
107	On	On	Off	On	Off	On	On
108	Off	Off	On	On	Off	On	On
109	On	Off	On	On	Off	On	On
110	Off	On	On	On	Off	On	On
111	On	On	On	On	Off	On	On
112	Off	Off	Off	Off	On	On	On
113	On	Off	Off	Off	On	On	On
114	Off	On	Off	Off	On	On	On
115	On	On	Off	Off	On	On	On
116	Off	Off	On	Off	On	On	On
117	On	Off	On	Off	On	On	On
118	Off	On	On	Off	On	On	On
119	On	On	On	Off	On	On	On
120	Off	Off	Off	On	On	On	On
121	On	Off	Off	On	On	On	On
122	Off	On	Off	On	On	On	On
123	On	On	Off	On	On	On	On
124	Off	Off	On	On	On	On	On
125	On	Off	On	On	On	On	On

Table C-5. A Bank DIP Switch Settings For Addresses 126 - 150

Address	A0	A1	A2	A3	A4	A5	A6
126	Off	On	On	On	On	On	On
127	On	On	On	On	On	On	On
128	Off	Off	Off	Off	Off	Off	Off
129	On	Off	Off	Off	Off	Off	Off
130	Off	On	Off	Off	Off	Off	Off
131	On	On	Off	Off	Off	Off	Off
132	Off	Off	On	Off	Off	Off	Off
133	On	Off	On	Off	Off	Off	Off
134	Off	On	On	Off	Off	Off	Off
135	On	On	On	Off	Off	Off	Off
136	Off	Off	Off	On	Off	Off	Off
137	On	Off	Off	On	Off	Off	Off
138	Off	On	Off	On	Off	Off	Off
139	On	On	Off	On	Off	Off	Off
140	Off	Off	On	On	Off	Off	Off
141	On	Off	On	On	Off	Off	Off
142	Off	On	On	On	Off	Off	Off
143	On	On	On	On	Off	Off	Off
144	Off	Off	Off	Off	On	Off	Off
145	On	Off	Off	Off	On	Off	Off
146	Off	On	Off	Off	On	Off	Off
147	On	On	Off	Off	On	Off	Off
148	Off	Off	On	Off	On	Off	Off
149	On	Off	On	Off	On	Off	Off
150	Off	On	On	Off	On	Off	Off

Table C-6. A Bank DIP Switch Settings For Addresses 151 - 175

Address	A0	A1	A2	A3	A4	A5	A6
151	On	On	On	Off	On	Off	Off
152	Off	Off	Off	On	On	Off	Off
153	On	Off	Off	On	On	Off	Off
154	Off	On	Off	On	On	Off	Off
155	On	On	Off	On	On	Off	Off
156	Off	Off	On	On	On	Off	Off
157	On	Off	On	On	On	Off	Off
158	Off	On	On	On	On	Off	Off
159	On	On	On	On	On	Off	Off
160	Off	Off	Off	Off	Off	On	Off
161	On	Off	Off	Off	Off	On	Off
162	Off	On	Off	Off	Off	On	Off
163	On	On	Off	Off	Off	On	Off
164	Off	Off	On	Off	Off	On	Off
165	On	Off	On	Off	Off	On	Off
166	Off	On	On	Off	Off	On	Off
167	On	On	On	Off	Off	On	Off
168	Off	Off	Off	On	Off	On	Off
169	On	Off	Off	On	Off	On	Off
170	Off	On	Off	On	Off	On	Off
171	On	On	Off	On	Off	On	Off
172	Off	Off	On	On	Off	On	Off
173	On	Off	On	On	Off	On	Off
174	Off	On	On	On	Off	On	Off
175	On	On	On	On	Off	On	Off

Table C-7. A Bank DIP Switch Settings For Addresses 176 - 200

Address	A0	A1	A2	A3	A4	A5	A6
176	Off	Off	Off	Off	On	On	Off
177	On	Off	Off	Off	On	On	Off
178	Off	On	Off	Off	On	On	Off
179	On	On	Off	Off	On	On	Off
180	Off	Off	On	Off	On	On	Off
181	On	Off	On	Off	On	On	Off
182	Off	On	On	Off	On	On	Off
183	On	On	On	Off	On	On	Off
184	Off	Off	Off	On	On	On	Off
185	On	Off	Off	On	On	On	Off
186	Off	On	Off	On	On	On	Off
187	On	On	Off	On	On	On	Off
188	Off	Off	On	On	On	On	Off
189	On	Off	On	On	On	On	Off
190	Off	On	On	On	On	On	Off
191	On	On	On	On	On	On	Off
192	Off	Off	Off	Off	Off	Off	On
193	On	Off	Off	Off	Off	Off	On
194	Off	On	Off	Off	Off	Off	On
195	On	On	Off	Off	Off	Off	On
196	Off	Off	On	Off	Off	Off	On
197	On	Off	On	Off	Off	Off	On
198	Off	On	On	Off	Off	Off	On
199	On	On	On	Off	Off	Off	On
200	Off	Off	Off	On	Off	Off	On

Table C-8. A Bank DIP Switch Settings For Addresses 201 - 225

Address	A0	A1	A2	A3	A4	A5	A6
201	On	Off	Off	On	Off	Off	On
202	Off	On	Off	On	Off	Off	On
203	On	On	Off	On	Off	Off	On
204	Off	Off	On	On	Off	Off	On
205	On	Off	On	On	Off	Off	On
206	Off	On	On	On	Off	Off	On
207	On	On	On	On	Off	Off	On
208	Off	Off	Off	Off	On	Off	On
209	On	Off	Off	Off	On	Off	On
210	Off	On	Off	Off	On	Off	On
211	On	On	Off	Off	On	Off	On
212	Off	Off	On	Off	On	Off	On
213	On	Off	On	Off	On	Off	On
214	Off	On	On	Off	On	Off	On
215	On	On	On	Off	On	Off	On
216	Off	Off	Off	On	On	Off	On
217	On	Off	Off	On	On	Off	On
218	Off	On	Off	On	On	Off	On
219	On	On	Off	On	On	Off	On
220	Off	Off	On	On	On	Off	On
221	On	Off	On	On	On	Off	On
222	Off	On	On	On	On	Off	On
223	On	On	On	On	On	Off	On
224	Off	Off	Off	Off	Off	On	On
225	On	Off	Off	Off	Off	On	On

Table C-9. A Bank DIP Switch Settings For Addresses 226-255

Address	A0	A1	A2	A3	A4	A5	A6
226	Off	On	Off	Off	Off	On	On
227	On	On	Off	Off	Off	On	On
228	Off	Off	On	Off	Off	On	On
229	On	Off	On	Off	Off	On	On
230	Off	On	On	Off	Off	On	On
231	On	On	On	Off	Off	On	On
232	Off	Off	Off	On	Off	On	On
233	On	Off	Off	On	Off	On	On
234	Off	On	Off	On	Off	On	On
235	On	On	Off	On	Off	On	On
236	Off	Off	On	On	Off	On	On
237	On	Off	On	On	Off	On	On
238	Off	On	On	On	Off	On	On
239	On	On	On	On	Off	On	On
240	Off	Off	Off	Off	On	On	On
241	On	Off	Off	Off	On	On	On
242	Off	On	Off	Off	On	On	On
243	On	On	Off	Off	On	On	On
244	Off	Off	On	Off	On	On	On
245	On	Off	On	Off	On	On	On
246	Off	On	On	Off	On	On	On
247	On	On	On	Off	On	On	On
248	Off	Off	Off	On	On	On	On
249	On	Off	Off	On	On	On	On
250	Off	On	Off	On	On	On	On
251	On	On	Off	On	On	On	On
252	Off	Off	On	On	On	On	On
253	On	Off	On	On	On	On	On
254	Off	On	On	On	On	On	On
255	On	On	On	On	On	On	On

Appendix D: Reference

Specifications

NOTICE **Specifications subject to change without notice.**

Table D-1. QuickServer ProtoNode Specifications

Item	Description
Electrical Connections	One 6-pin Phoenix connector with RS-232 port (+/-/gnd) and Power port (+/-/Frame-gnd) One 3-pin Phoenix connector with RS-485 port (+/-/gnd) One Ethernet 10/100 BaseT port
Approvals	CE Certified; TUV approved to UL 916, 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	Multi-mode power adapter 9-30V DC or 12 - 24V AC
Physical Dimensions	11.5 cm L x 8.3 cm W x 4.1 cm H (4.5 x 3.2 x 1.6 in)
Weight	0.2 kg (0.4 lbs)
Operating Temperature	-40°C o 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)

Compliance With UL Regulations

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

- 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 QuickServer
- 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.

Certifications - BTL Mark - BACnet® Testing Laboratory

The BTL Mark on QuickServer 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.

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