



**Multi-Protocol Communication Card (COM CARD)
Start-up Guide
For Interfacing KEP Products: SUPERtrol_II, SUPERtrol_I,
LEVELtrol_II, ES762-ST2
To Building Automation Systems:
BACnet MS/TP, BACnet/IP, Modbus TCP/IP, Metasys N2,
EtherNet/IP, DF1 and LonWorks**

APPLICABILITY & EFFECTIVITY

Explains hardware specifications, setup instructions and usage.
The instructions are effective for the above as of August 2016.



Technical Support

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Website: www.KEP.com

Quick Start Guide

1. Record the information about the unit. (**Section 3.1**)
2. Set the device's Modbus RTU serial settings (i.e. baud rate, parity, stop bits) and Modbus Node-ID for the device connected to the COM CARD. (**Section 3.3**)
3. Metasys N2 or Modbus TCP/IP: Set the Node-ID. (**Section 3.3.2**)
4. **Connect COM CARD** 4 pin RS-485 port to the Field Protocol cabling, (**Section 4.2**) for LonWorks port (**Section 4.3**)
5. Use a browser to access the embedded tool, which is referred to in this manual as the Web Configurator, to select the device that will be attached to COM CARD and set the Modbus Node-ID. Once the device is selected, the COM CARD Automatically builds and loads the Configuration. (**Section 5**)
6. BACnet/IP or Modbus TCP/IP (Option 3): Use a browser to access the COM CARD Web Configurator to change the IP Address. No changes to the configuration are necessary. (**Section 5.4**)
7. LonWorks (Option 4): The COM CARD must be commissioned on the LonWorks Network. This needs to be done by the LonWorks administrator using a LonWorks Commissioning tool. (**Section 8**)



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NOTES

1 CERTIFICATIONS

1.1 BTL Mark – BACnet Testing Laboratory



The BTL Mark on the COM CARD 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 <http://www.BACnetInternational.net/btl/> for more information about the BACnet Testing Laboratory. Click here for [BACnet PIC Statement](#).

1.2 LonMark Certification



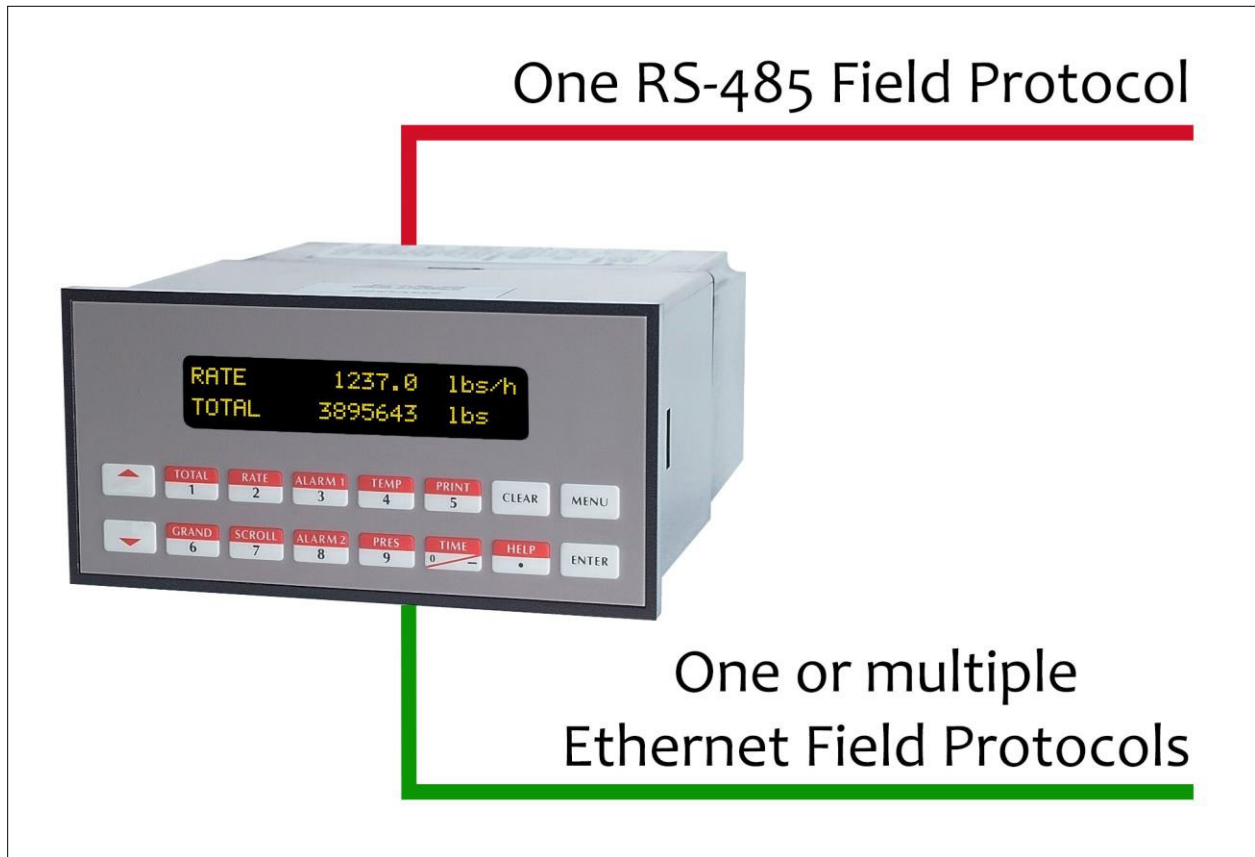
LonMark International is the recognized authority for certification, education, and promotion of interoperability standards for the benefit of manufacturers, integrators and end users. LonMark International has developed extensive product certification standards and tests to provide the integrator and user with confidence that products from multiple manufacturers utilizing LonMark devices work together.

2 INTRODUCTION

2.1 PCOM CARD

The COM CARD option is an internal, high performance **Building Automation multi-protocol gateway** that is preconfigured to automatically communicate between KEP's products (hereafter called "device") connected to the COM CARD and automatically configures them for BACnet^{®1}MS/TP, BACnet/IP, Metasys^{®2}N2 by JCI, Modbus TCP/IP, EtherNet/IP, DF1 or LonWorks^{®3}.

It is not necessary to download any configuration files to support the required applications. The COM CARD is pre-loaded with tested Profiles/Configurations for the supported devices.



¹BACnet is a registered trademark of ASHRAE

²Metasys is a registered trademark of Johnson Controls Inc.

³LonWorks is a registered trademark of Echelon Corporation

3 SETUP FOR COM CARD

3.1 Record Identification Data

Each unit 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.

Record Your Model Number Below: Example: **ST2 O 1 3 BAC/IP P**

MODEL NO. _____

Model	Protocols Supported
Option 3 (Specify Protocol)	BACnet IP, BACnet MS/TP, Modbus TCP/IP, Meyasys N2, AB DF1, AB Ethernet/IP
Option 4 (LonWorks)	LonWorks
COM CARD Option Part Numbers	

- Option 3 units have the following 2 ports: Ethernet + RS-485
- Option 4 units have the following 2 ports: LonWorks + Ethernet

3.2 Point Count Capacity and Registers per Device

The total number of Registers presented by the device attached to the COM CARD cannot exceed:

Part number	Total Registers
Option 3	1,500
Option 4	1,500
Figure 2: Supported Point Count Capacity	

Devices	Registers Per Device
SUPERtrol_II	116
SUPERtrol_I	64
LEVELtrol_II	40
ES762-ST2	126
Figure 3: Registers per Device	

3.3 Configuring Device Communications

3.3.1 Input COM Settings for all Devices with an Inserted COM CARD

- **Set the serial device that the COM CARD is plugged into to have the same Baud Rate, Data Bits, Stop Bits, and Parity settings as the COM CARD.**
- **Figure 4** specifies the device serial port settings required to communicate with the COM CARD.

Port Setting	Device
Protocol	Modbus RTU
Baud Rate	9600
Parity	None
Data Bits	8
Stop Bits	1

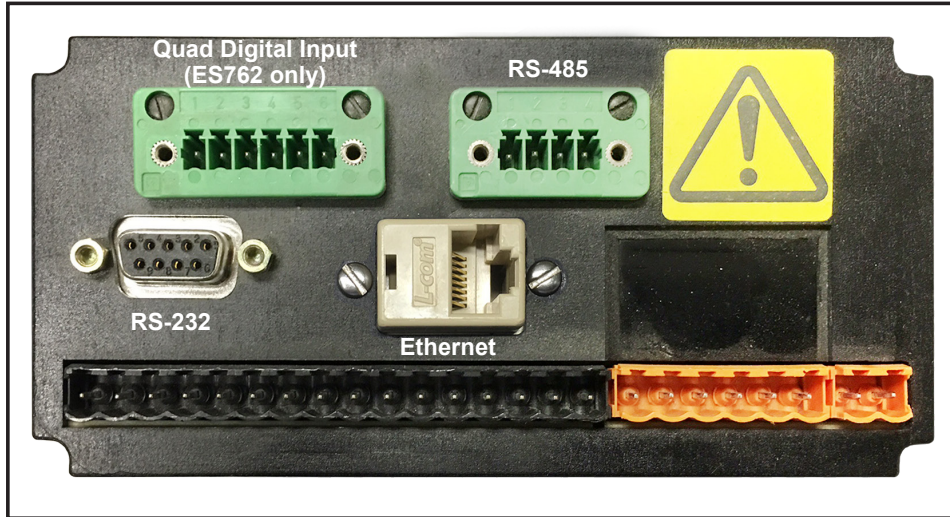
Figure 4: COM Settings

3.3.2 Set Modbus Node-ID for the Device

- Set Modbus Node-ID for the device the COM CARD is plugged into. The Modbus Node-ID needs to be uniquely assigned between 1 and 255.
 - **The Modbus Node-ID that is assigned for the device needs to be documented**
 - The Modbus Node-ID assigned is used for designating the Device Instance for BACnet/IP and BACnet MS/TP (**Section 6**)
- The Metasys N2 and Modbus TCP/IP field protocol Node-IDs are automatically set to be the same value as the Node-ID of the Modbus RTU device.

4 INTERFACING COM CARD TO DEVICE

4.1 Connection Ports



4.2 BACnet MS/TP or Metasys N2 (Option 3): Wiring Field Port to RS-485 Network

- Connect the BACnet MS/TP or Metasys N2 RS-485 network wires to the 4-pin RS-485 connector on COM CARD Terminal Block as shown below in **Figure 6**.
 - The RS-485 GND (Pin 1) is not typically connected
- See **Section 5.4** for information on connecting to BACnet/IP network.
- If the COM CARD is the last device on the BACnet MS/TP or Metasys N2 trunk, then the End-Of-Line Terminating resistor (180 Ω) needs to be activated by placing a jumper from terminal pin 2 to terminal pin 3 on the multidrop cable end station.

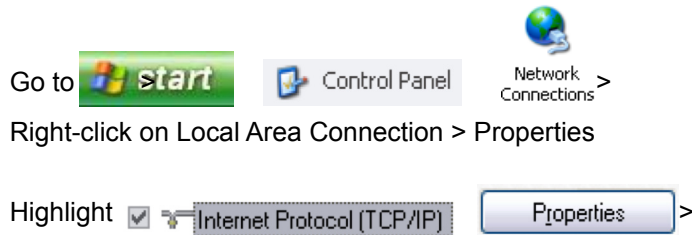
BMS RS-485 Wiring	Flow Computer COM Card Pin #	Pin Assignment
RS-485 +	Pin 4	RS-485 +
RS-485 –	Pin 3	RS-485 –
End Of Line Termination	Pin 2	Terminating Resistor
-	Pin 1	RS-485 GND

Figure 6: Connection from COM CARD to RS-485 Field Network

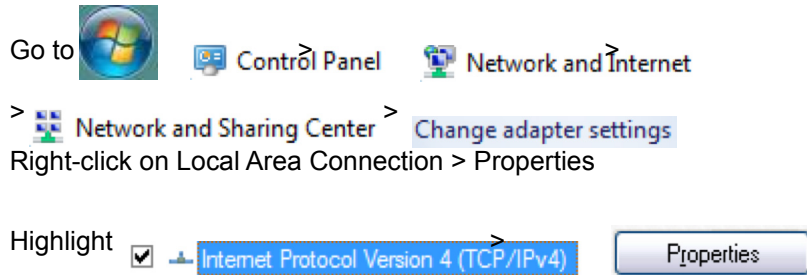
5 USE COM CARD WEB CONFIGURATOR TO SETUP THE GATEWAY

5.1 Connect the PC to COM CARD via the Ethernet Port

- Connect a CAT5 Ethernet cable (Straight through or Cross-Over) between the local PC and COM CARD Ethernet Port.
- The Default IP Address of COM CARD is **192.168.1.24**, Subnet Mask is **255.255.255.0**. If the PC and COM CARD are on different IP Networks, assign a static IP Address to the PC on the 192.168.1.xxx network.
- For Windows XP:



- For Windows 7 or later:



- For Windows XP and Windows 7, use the following IP Address:

Use the following IP address:

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

- Click twice.

5.2 Connecting to COM CARD Web Configurator

- After setting a local PC on the same subnet as the COM CARD (**Section 5.1**), open a web browser on the PC and enter the IP Address of the COM CARD; the default address is 192.168.1.24.

NOTE: If the IP Address of the COM CARD has been changed by previous configuration, the assigned IP Address can be discovered using the FS Toolbox utility. See [Appendix A.1](#) for instructions.

5.3 Selecting Profiles for Device Connected to COM CARD

- In the Web Configurator, the Active Profiles section is shown on the lower left side of the screen.
- The Active Profiles section lists the currently active device profiles, including previous Web Configurator additions. This list will be empty for new installations, or after clearing all configurations. ([Figure 9](#))
- To add an active profile to support a device, click the ADD button under Active Profiles. This will present a drop-down box underneath the Current Profile column that lists all the available profiles. ([Figure 10](#))
- For every device that is added, assign a unique Modbus Node-ID. This specification must match the device's network settings.

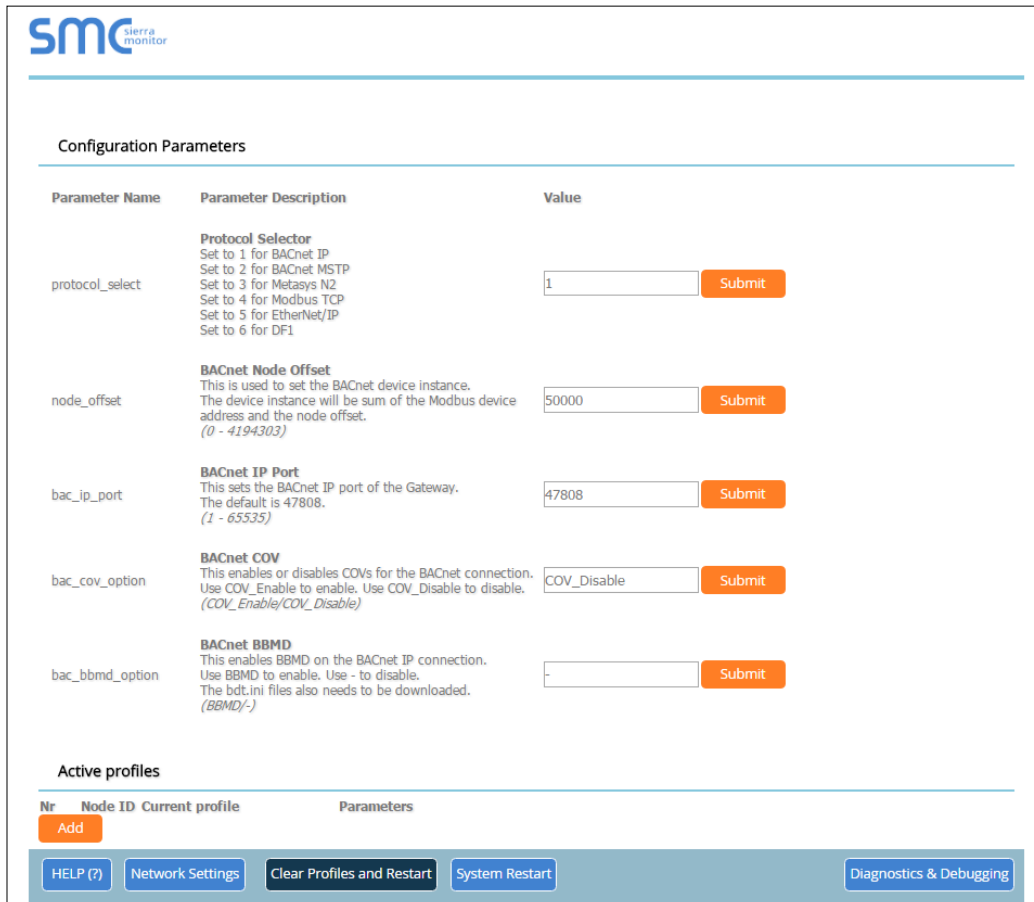


Figure 9: Web Configurator Showing no Active Profiles

- Once the Profile for the device has been selected from the drop-down list, enter the value of the device's Modbus Node-ID which was assigned in **Section 3.3.2**.



Figure 10: Web Configurator Showing Available Profiles for Selection

- Then press the “Submit” button to add the Profile of the device to be configured.
- Completed additions will be listed under “Active Profiles” as shown in **Figure 11**.

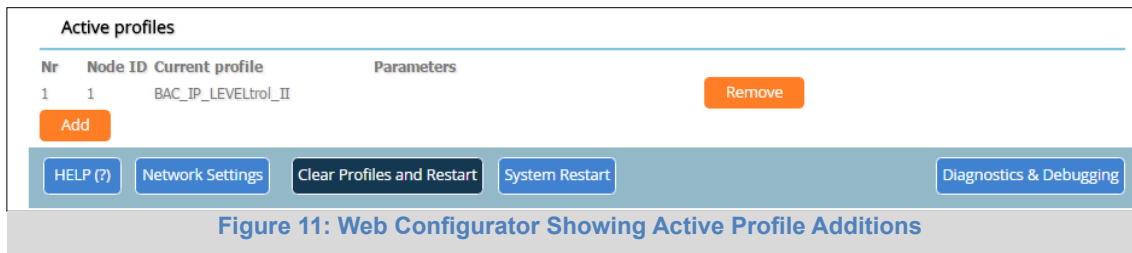


Figure 11: Web Configurator Showing Active Profile Additions

5.4 BACnet/IP and Modbus TCP/IP: Setting IP Address for Field Network

- After setting a local PC to the same subnet as the COM CARD (**Section 5.1**), open a web browser on the PC and enter the IP Address of the COM CARD; the default address is 192.168.1.24.
- The Web Configurator is displayed as the landing page. (**Figure 12**)
- **To access the Web GUI, click on the “Diagnostics & Debugging” button** in the bottom right side of the page.

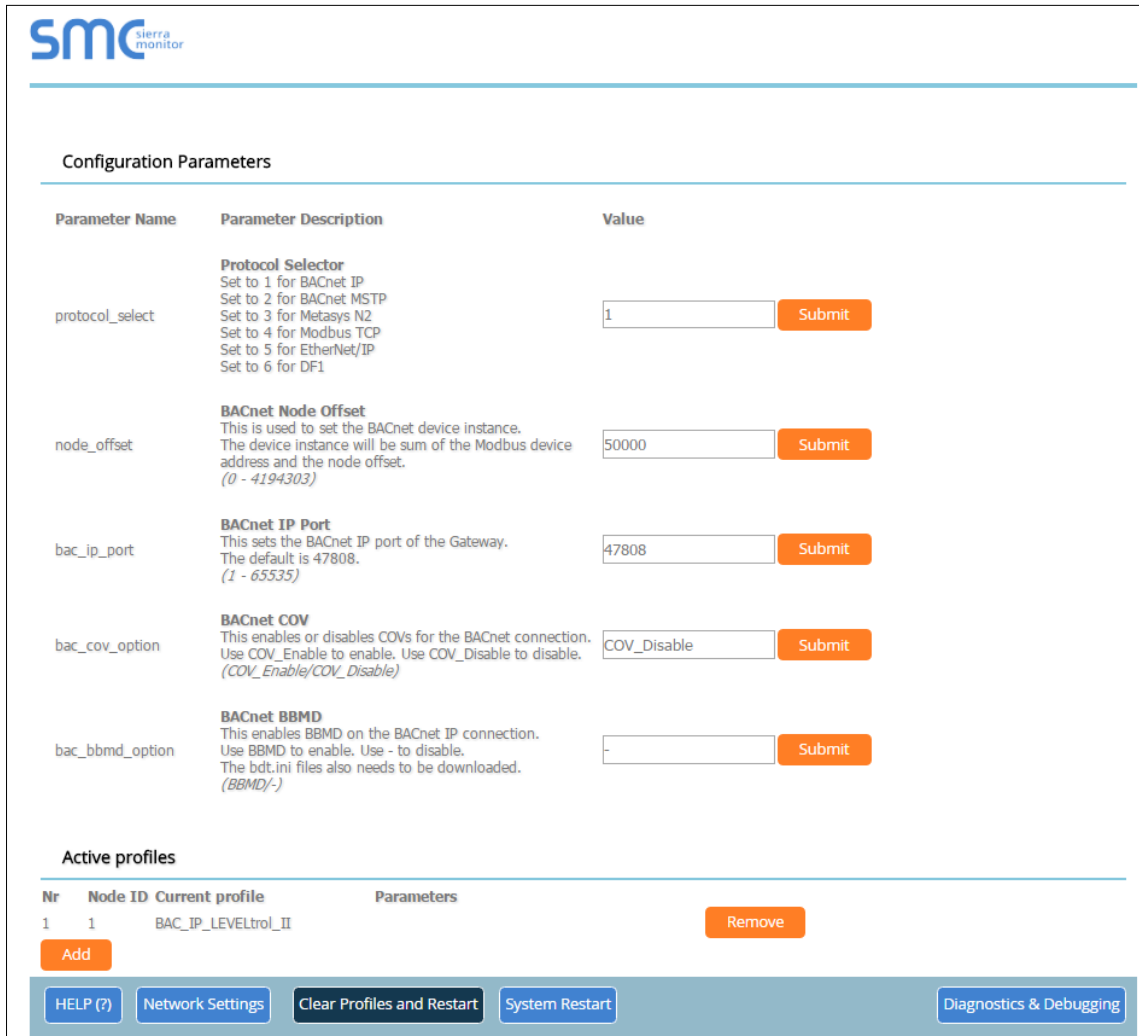


Figure 12: Web Configurator Screen with Active Profiles

- From the Web GUI landing page, click on “Setup” to expand the navigation tree and then select “Network Settings” to access the IP Settings menu. (Figure 13)

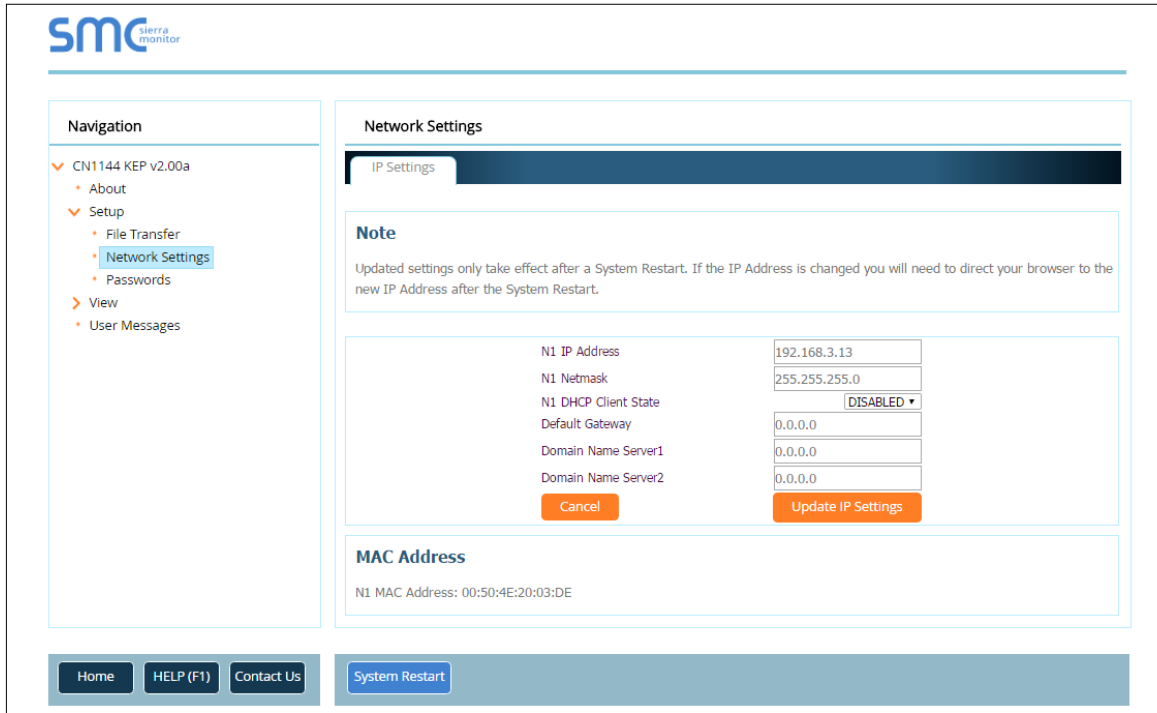


Figure 13: Changing IP Address via Web GUI

- Modify the IP Address (N1 IP Address field) of the COM CARD Ethernet port.
- If necessary, change the Netmask (N1 Netmask field).
- Type in a new Subnet Mask.
- If necessary, change the IP Gateway (Default Gateway field).
- Type in a new IP Gateway.

NOTE: If the COM CARD is connected to a router, the IP Gateway of the COM CARD should be set to the IP Address of that router.

- Reset COM CARD.
- Unplug Ethernet cable from PC and connect it to the network hub or router.
- Record the IP Address assigned to the **COM CARD** for future reference.

5.5 Select Field Protocol

For Option 3 – Use the Protocol Selector by typing in the corresponding number next to the desired protocol:

- BACnet/IP 1
- BACnet MS/TP 2
- Metasys N2 3
- Modbus TCP/IP 4
- EtherNet/IP 5
- DF1 6

Then click “System Restart” to bring up options to configure the desired protocol.

For Option 4 – There are no device details to be entered for this protocol combination.

5.5.1 BACnet/IP Configuration

- Enter the appropriate details for BACnet/IP:

The screenshot shows the SMC Sierra Monitor web configurator interface. At the top left is the SMC Sierra Monitor logo. Below it is a section titled "Configuration Parameters" which contains a table of settings. Each row in the table has a parameter name, a description, a value input field, and a "Submit" button. The parameters shown are: protocol_select (value: 1), node_offset (value: 50000), bac_ip_port (value: 47808), bac_cov_option (value: COV_Disable), and bac_bbmd_option (value: -). Below the configuration parameters is an "Active profiles" section with a table that has columns for "Nr", "Node ID", "Current profile", and "Parameters". There is an "Add" button below the table. At the bottom of the interface is a navigation bar with buttons for "HELP (?)", "Network Settings", "Clear Profiles and Restart", "System Restart", and "Diagnostics & Debugging".

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 Metasys N2 Set to 4 for Modbus TCP Set to 5 for EtherNet/IP Set to 6 for DF1	1 <input type="button" value="Submit"/>
node_offset	BACnet Node Offset This is used to set the BACnet device instance. The device instance will be sum of the Modbus device address and the node offset. (0 - 4194303)	50000 <input type="button" value="Submit"/>
bac_ip_port	BACnet IP Port This sets the BACnet IP port of the Gateway. The default is 47808. (1 - 65535)	47808 <input type="button" value="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. (COV_Enable/COV_Disable)	COV_Disable <input type="button" value="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. (BBMD/-)	- <input type="button" value="Submit"/>

Nr	Node ID	Current profile	Parameters
<input type="button" value="Add"/>			

Navigation buttons:

Figure 14: Web Configurator Showing BACnet/IP Configuration

5.5.2 BACnet MS/TP Configuration

- Enter the appropriate details for BACnet MS/TP:

The screenshot shows the SMC Sierra Monitor web configurator interface for BACnet MS/TP configuration. It features a table of configuration parameters with input fields and submit buttons. Below the table is an 'Active profiles' section with an 'Add' button. At the bottom, there is a navigation bar with buttons for HELP (?), Network Settings, Clear Profiles and Restart, System Restart, and Diagnostics & Debugging.

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 Metasys N2 Set to 4 for Modbus TCP Set to 5 for EtherNet/IP Set to 6 for DF1	2 <input type="button" value="Submit"/>
node_offset	BACnet Node Offset This is used to set the BACnet device instance. The device instance will be sum of the Modbus device address and the node offset. (0 - 4194303)	50000 <input type="button" value="Submit"/>
bac_mac_addr	BACnet MSTP Mac Address This sets the BACnet MSTP MAC address. (1 - 127)	127 <input type="button" value="Submit"/>
bac_baud_rate	BACnet MSTP Baud Rate This sets the BACnet MSTP baud rate. (9600/19200/38400/76800)	38400 <input type="button" value="Submit"/>
bac_max_master	BACnet MSTP Max Master This sets the BACnet MSTP max master. (1 - 127)	127 <input type="button" value="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. (COV_Enable/COV_Disable)	COV_Disable <input type="button" value="Submit"/>

Active profiles

Nr	Node ID	Current profile	Parameters
<input type="button" value="Add"/>			

Navigation bar:

Figure 15: Web Configurator Showing BACnet MS/TP Configuration

5.5.3 Metasys N2, Modbus TCP and EtherNet/IP Configuration

- There are no Web Configurator Parameters for Metasys N2, Modbus TCP/IP or EtherNet/IP:



Figure 16: Web Configurator Showing Metasys N2 Configuration

5.5.4 DF1 Configuration

- Enter the appropriate details for DF1:

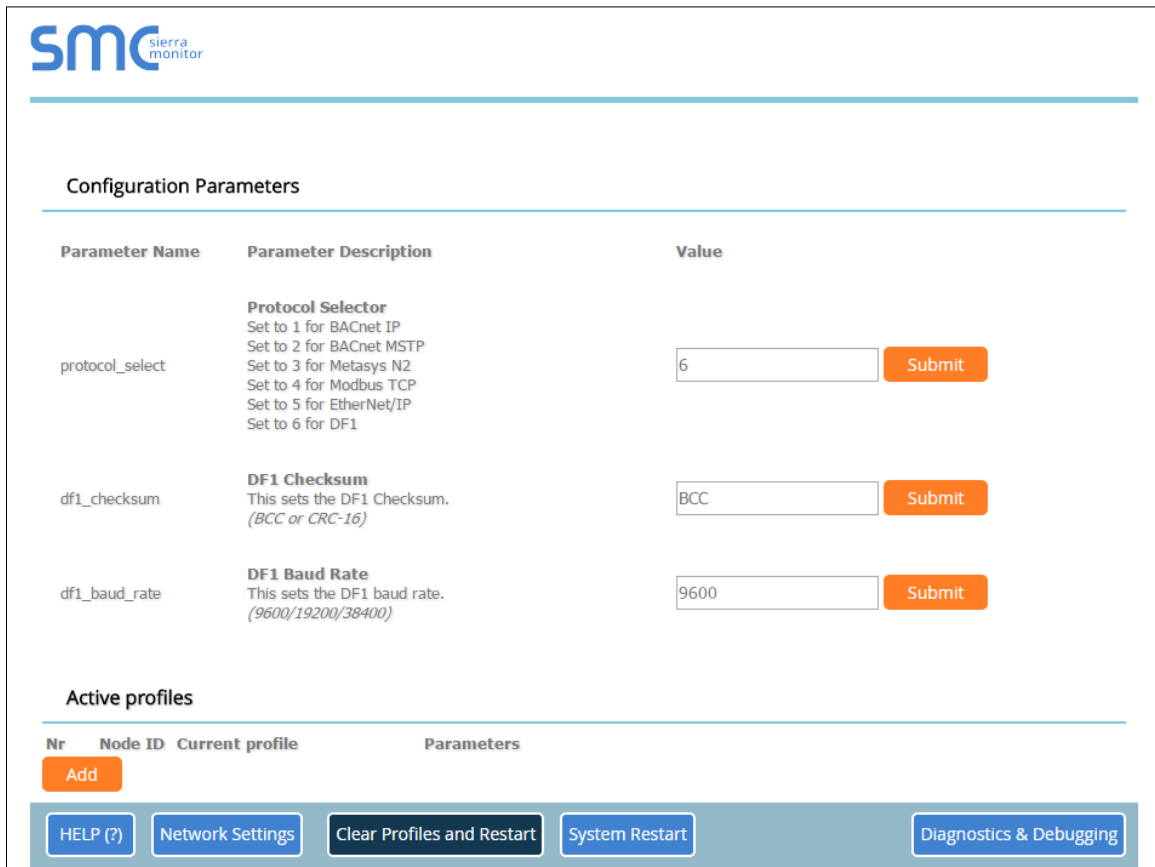


Figure 17: Web Configurator Showing DF1 Configuration

6 BACNET MS/TP AND BACNET/IP: SETTING NODE_OFFSET TO ASSIGN SPECIFIC DEVICE INSTANCES

- After setting a local PC to be on the same subnet as the COM CARD (**Section 5.1**), open a web browser on the PC and enter the IP Address of the COM CARD; the default address is 192.168.1.24.
 - If the IP Address of the COM CARD has been changed by previous configuration, the assigned IP Address must be gathered from the network administrator.
 - The Web Configurator is displayed as the landing page. (**Section 5.5**)
- The Node_Offset field shows the current value (default = 50,000).
 - The values allowed for a BACnet Device Instance can range from 1 to 4,194,303.
- To assign a specific Device Instance (or range); change the Node_Offset value as needed using the calculation below:

Device Instance (desired) = Node_Offset + Modbus Node_ID

For example, if the desired Device Instance for the device is 1,001 and the device has a Modbus Node-ID of 1 then:

1,001 = Node_Offset + 1

➤ **1,000 = Node_Offset**
- Enter the decided upon Node_Offset and click “Submit”.

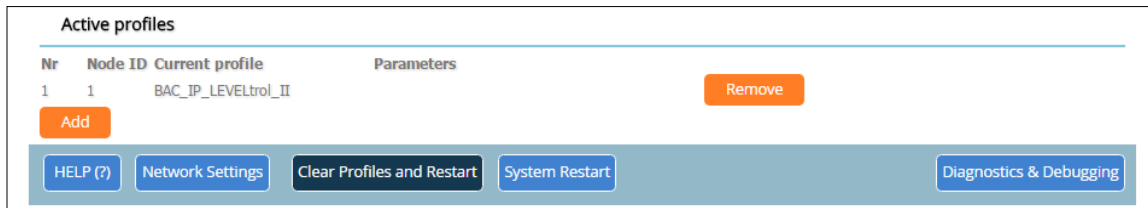


Figure 18: Active Profiles with Node-ID

7 HOW TO START THE INSTALLATION OVER: CLEARING PROFILES

- After setting a local PC to the same subnet as the COM CARD (**Section 5.1**), open a web browser on the PC and enter the IP Address of the COM CARD; the default address is 192.168.1.24.
- If the IP Address of the COM CARD has been changed by previous configuration, the assigned IP Address must be gathered from the network administrator.
- The Web Configurator is displayed as the landing page.
- At the bottom-left of the page, click the “Clear Profiles and Restart” button.
- Once restart is complete, all past profiles discovered and/or added via Web configurator are deleted. The unit can now be reinstalled.

8 LONWORKS (Option 4): COMMISSIONING COM CARD ON A LONWORKS NETWORK

Commissioning may only be performed by the LonWorks administrator.

8.1 Commissioning COM CARD Option 4 on a LonWorks Network

The User will be prompted by the LonWorks Administrator to hit the Service Pin on the COM CARD Option 4 at the correct step of the Commissioning process which is different for each LonWorks Network Management Tool.

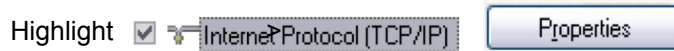
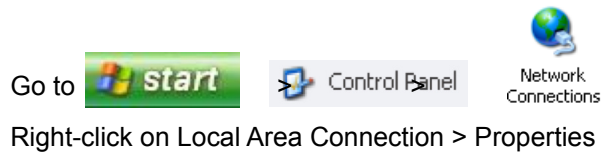
- If an XIF file is required, see steps in **Section 8.1.1** to generate XIF.



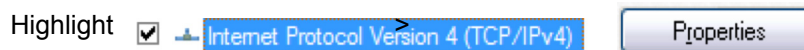
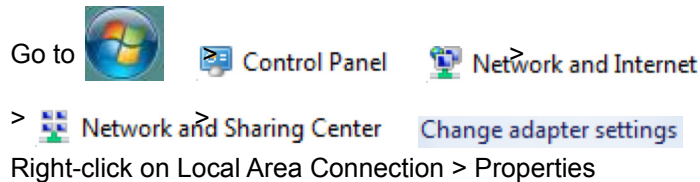
Figure 19: LonWorks Service Pin Location

8.1.1 Instructions to Download XIF File from COM CARD Option 4 Using Browser

- Connect a CAT5 Ethernet cable (Straight through or Cross-Over) between the PC and COM CARD.
- The Default IP Address of COM CARD is **192.168.1.24**, Subnet Mask is **255.255.255.0**. If the PC and COM CARD are on different IP Networks, assign a static IP Address to the PC on the 192.168.1.xxx network.
- For Windows XP:



- For Windows 7 or later:



- For Windows XP and Windows 7, use the following IP Address:

Use the following IP address:

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


- Click  twice.
- Open a web browser and go to the following address: [IP Address of COM CARD]/fserver.xif
 - Example: 192.168.1.24/fserver.xif
- If the web browser prompts to save the file, save the file onto the PC. If the web browser displays the xif file as a web page, save the file onto the local PC as “fserver.xif”.



Figure 20: Sample of Fserver.XIF File Generated

9 BACNET EXPLORER

A typical working example of a BACnet Explorer on a BACnet Network:

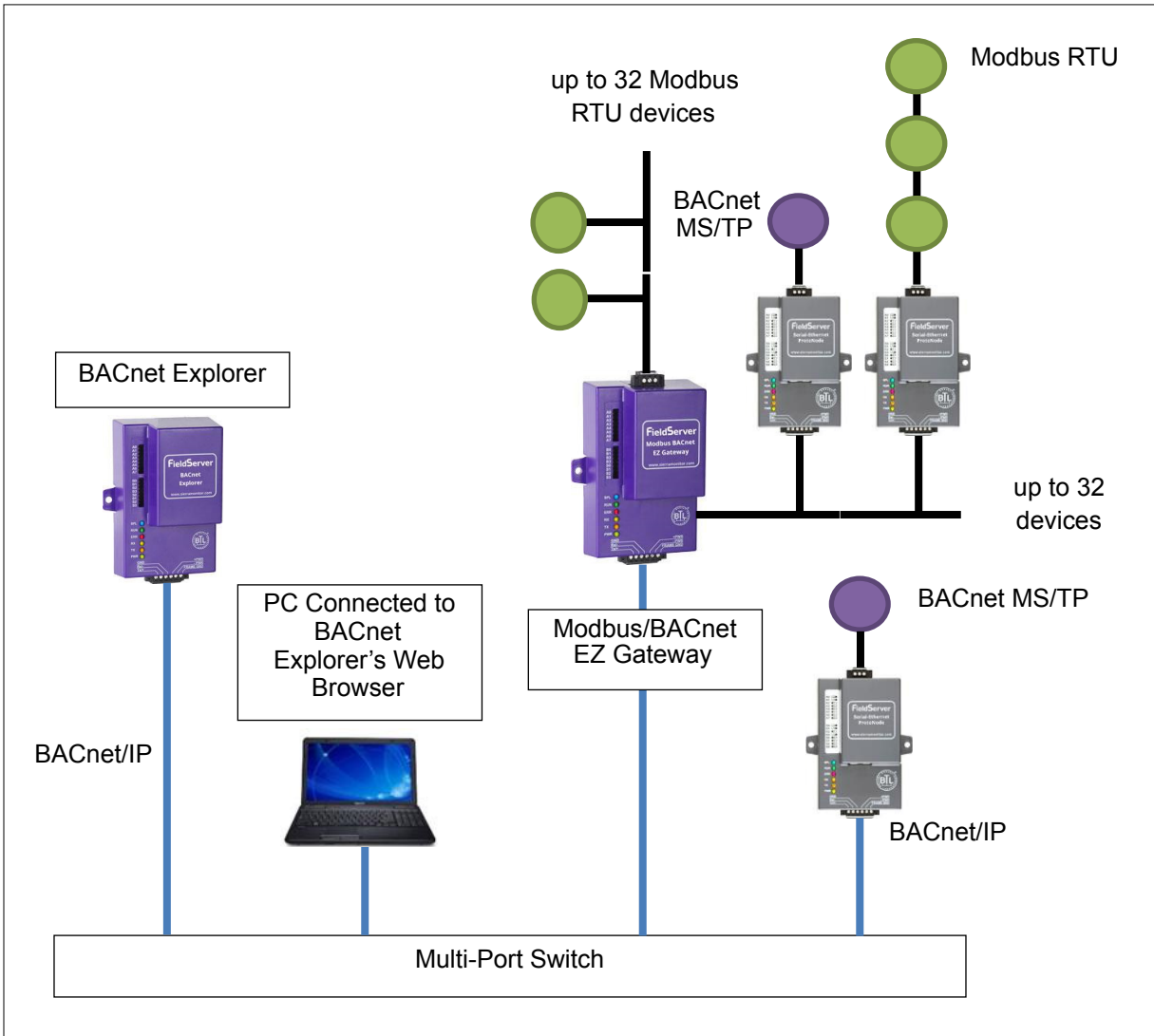


Figure 21: BACnet Explorer on a BACnet Network

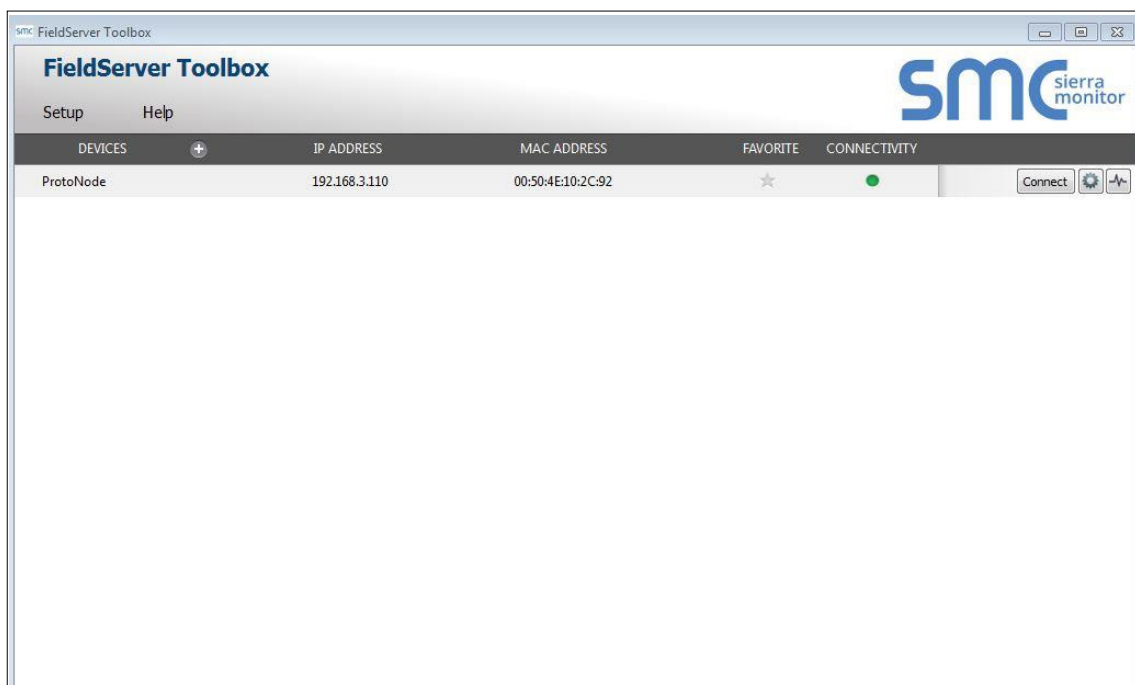
For additional details related to the BACnet Explorer, go to the Sierra Monitor Resource Center (www.sierramonitor.com/customer-care/resource-center) and download the BACnet Explorer Start-up Guide.

For purchasing information, look up the BACnet Explorer page on the Sierra Monitor website (www.sierramonitor.com/connect/all-protocol-gateway-products/bacnet-explorer) and click on the "BUY NOW" tab.

Appendix A. Troubleshooting

Appendix A.1. Lost or Incorrect IP Address

- Ensure that FieldServer Toolbox is loaded onto the local PC. If not, download FieldServer-Toolbox.zip on the Sierra Monitor webpage, under Customer Care-Resource Center, Software Downloads:
<http://www.sierramonitor.com/customer-care/resource-center?filters=software-downloads>
- Extract the executable file and complete the installation.
- Disable any wireless Ethernet adapters on the PC/Laptop.
- Disable firewall and virus protection software if possible.
- Connect a standard CAT5 Ethernet cable between the PC and COM CARD.
- Double click on the FS Toolbox Utility.
- Check IP Addresses from the Device listings.



- Correct IP Address(es) by right clicking the settings icon  and changing the IP Address.

Appendix A.2. Viewing Diagnostic information

- Type the IP Address of the COM CARD into the web browser or use the FieldServer Toolbox to connect to the COM CARD.
- Click on Diagnostics and Debugging Button, then click on view, and then on connections.
- If there are any errors showing on the Connection page, please refer to [Appendix A.3](#) for the relevant wiring and settings.

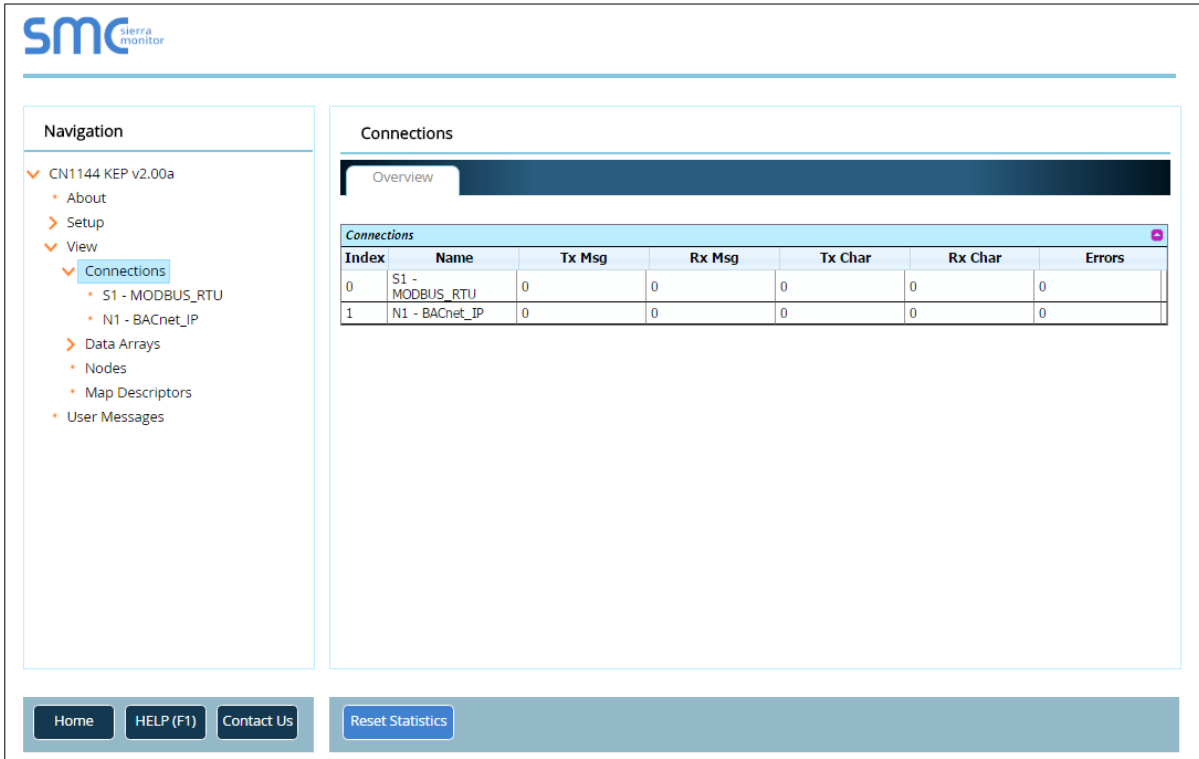


Figure 23: Error messages screen

Appendix A.3. Check Wiring and Settings

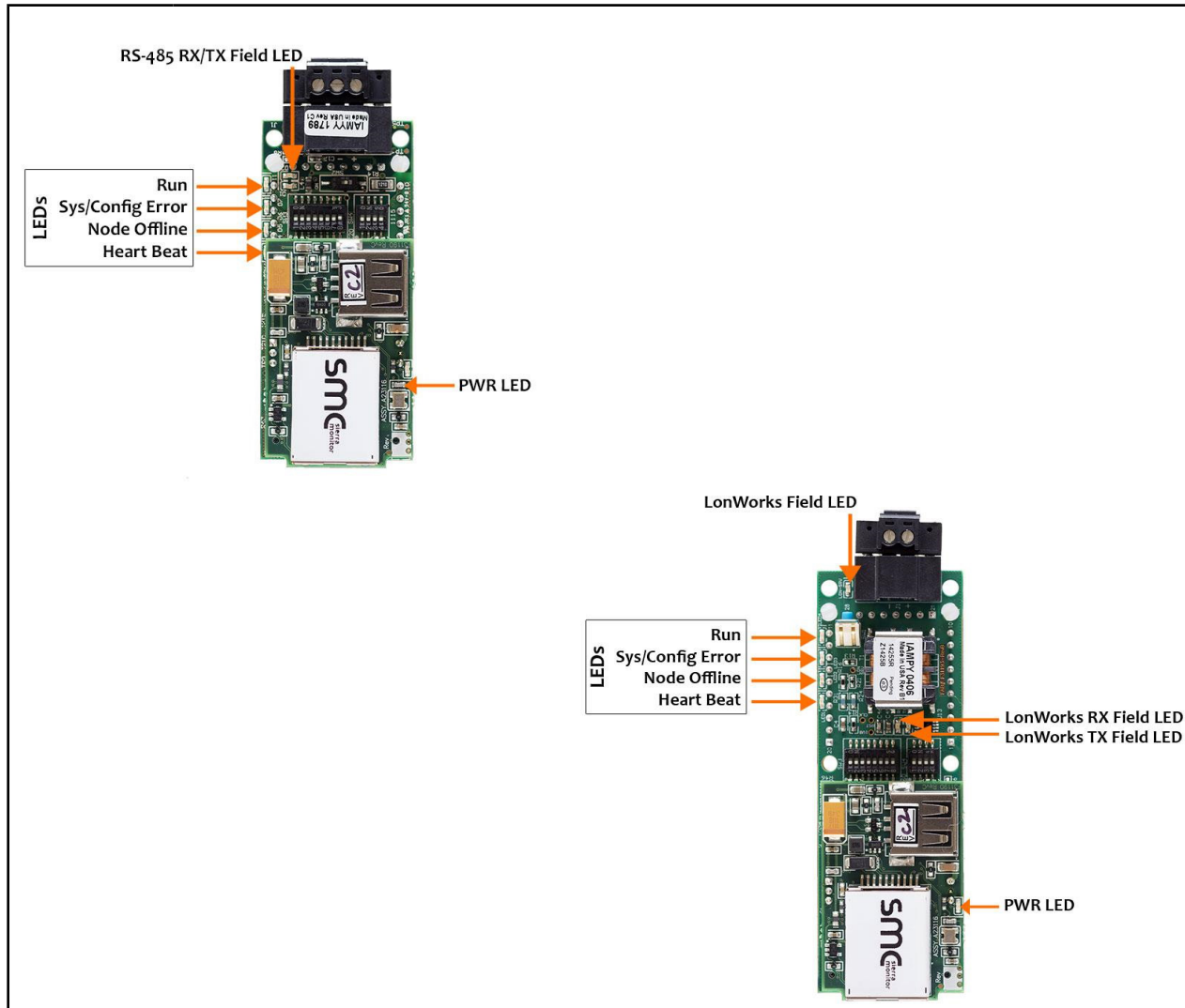
- No COMS on Modbus RTU side. If the Tx/Rx LEDs are not flashing rapidly then there is a COM issue. To fix, check the following:
 - Visual observations of LEDs on COM CARD ([Appendix A.4](#))
 - Check baud rate, parity, data bits, stop bits
 - Check device address
 - Verify wiring
 - Verify device is connected to the same subnet as the COM CARD
 - Verify the Modbus device was discovered in Web Configurator ([Section 5.2](#))
- Field COM problems:
 - If Ethernet protocols are used, observe Ethernet LEDs on the COM CARD ([Appendix A.4](#))
 - Check dipswitch settings (using correct baud rate and device instance)
 - Verify IP Address setting
 - Verify wiring

NOTE: If the problem persists, a Diagnostic Capture needs to be taken and sent to support.

([Appendix A.5](#))

Appendix A.4. LED Diagnostics for Communications Between COM CARD and Device

Please see the diagram below for COM CARD Option 3 (left) and Option 4 (right) LED Locations.



Tag	Description
Run	The Run LED will start flashing 20 seconds after power indicating normal operation. The Heat Beat LED has the same functionality but flashes more rapidly.
Sys/Config Error	The Sys/Config Error 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 COM CARD. If this occurs, immediately report the related "system error" shown in the error screen of the GUI interface to Sierra Monitor Corporation for evaluation.
Node Offline	The Node Offline LED will turn on and stay solid if there is no communication with the device.
RX	The RX LED will flash when a message is received on the field port.
TX	The TX LED will flash when a message is sent on the field port.
LonWorks	The LonWorks LED will flash until the unit is commissioned, then it will stay off.
PWR	This is the power light and should show steady green when COM CARD is powered.

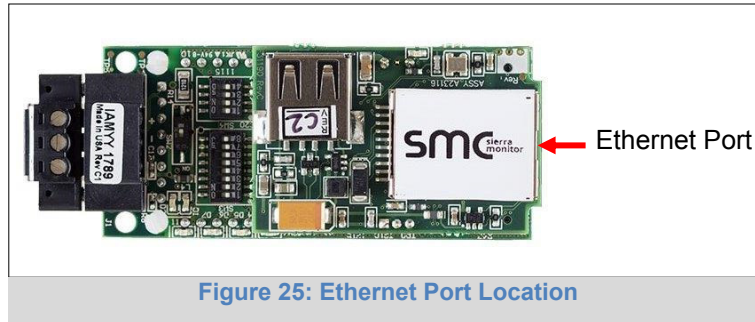
Figure 24: Diagnostic LEDs


Appendix A.5. Take Diagnostic Capture With the FieldServer Toolbox

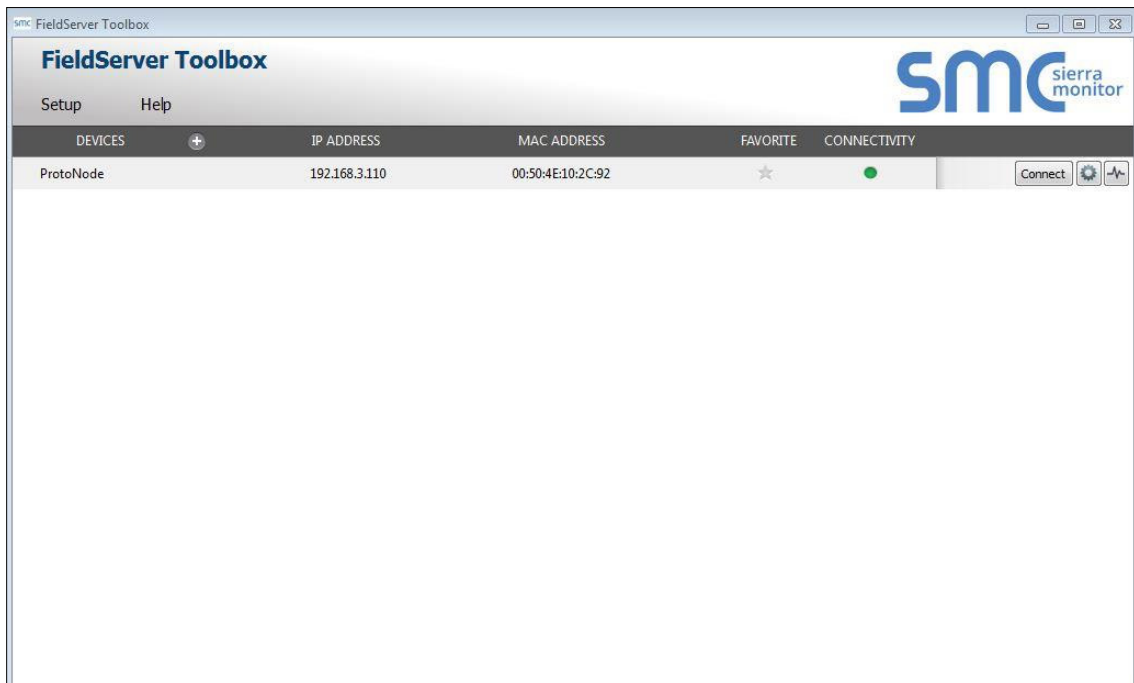
- Once the Diagnostic Capture is complete, email it to flowsupport@kep.com. The Diagnostic Capture will accelerate diagnosis of the problem.
- Ensure that FieldServer Toolbox is Loaded on the PC that is currently being used, or download FieldServer-Toolbox.zip on the Sierra Monitor webpage, under Customer Care: Resource Center, Software Downloads:

<http://www.sierramonitor.com/customer-care/resource-center?filters=software-downloads>

- Extract the executable file and complete the installation.



- Disable any wireless Ethernet adapters on the PC/Laptop.
- Disable firewall and virus protection software if possible.
- Connect a standard CAT5 Ethernet cable between the PC and COM CARD.
- Double click on the FS Toolbox Utility.
- **Step 1: Take a Log**
 - Click on the diagnose icon  of the desired device

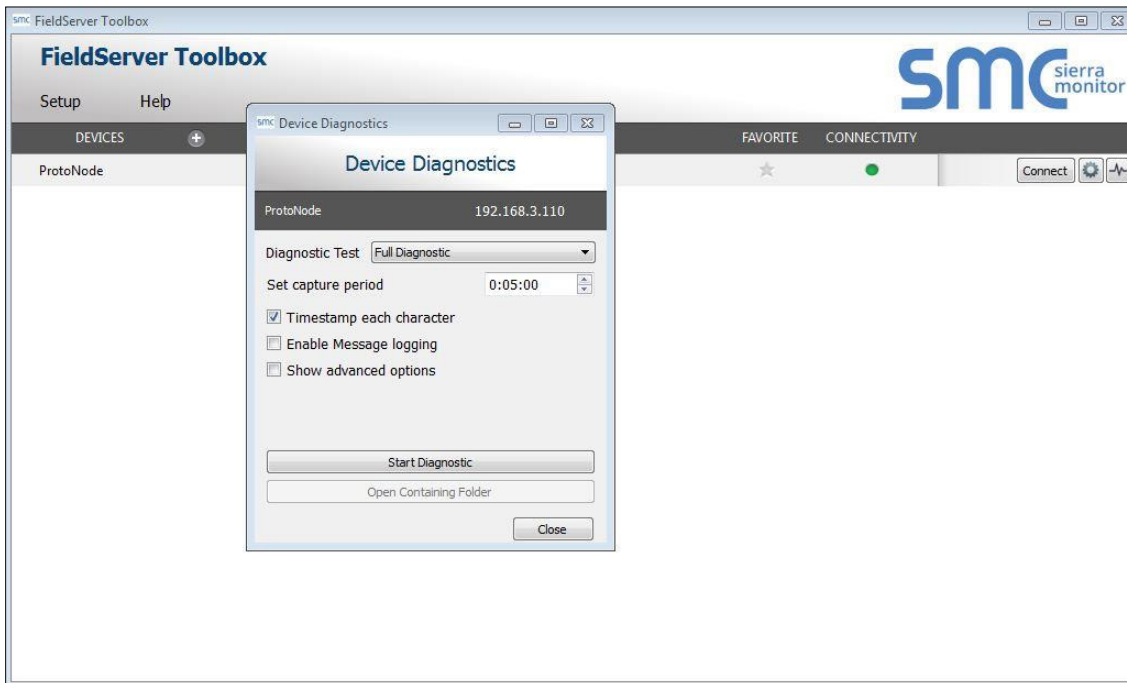


- Select “Full Diagnostic”



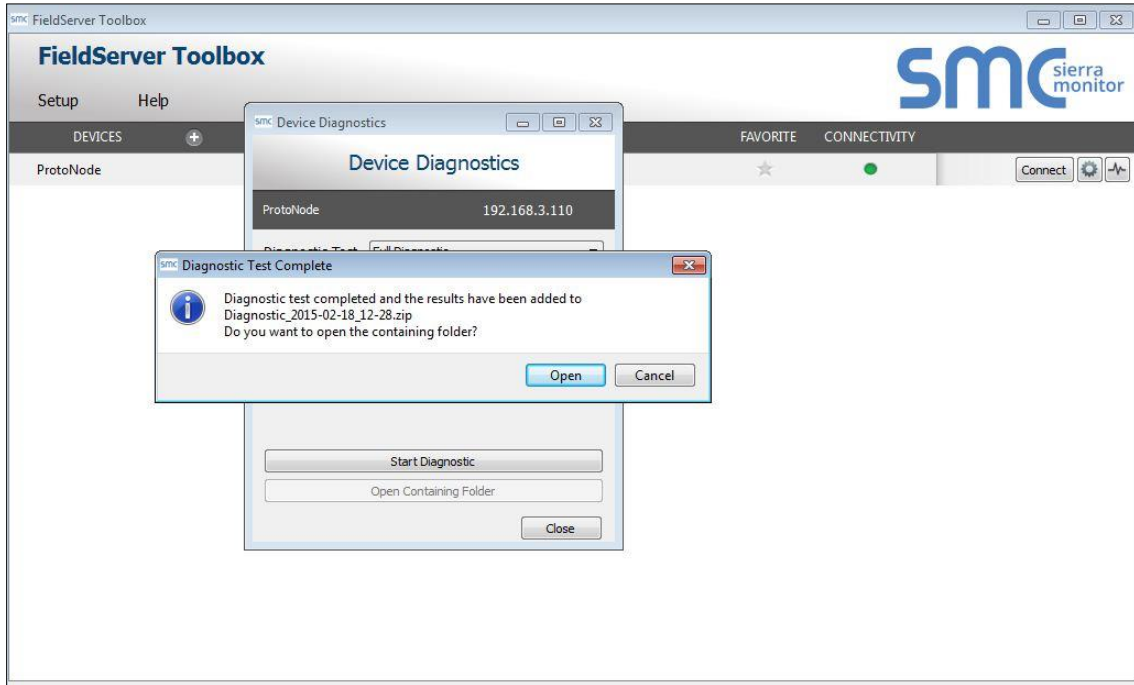
NOTE: If desired, the default capture period can be changed

- Click on “Start Diagnostic”



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

- **Step 2:** Send Log
 - Once the diagnostic test is complete, a .zip file will be saved on the PC



- Choose “Open” to launch explorer and have it point directly at the correct folder
- Send the Diagnostic zip file to flowsupport@kep.com

Diagnostic_2014-07-17_20-15.zip	2014/07/17 20:16	zip Archive	676 KB
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Appendix A.6. 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.
NOTE: Default IP Address is 192.168.1.24
NOTE: Use the FS Toolbox utility if the IP Address is unknown ([Appendix 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 “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.

Appendix A.7. Securing COM CARD with Passwords

Access to the COM CARD can be restricted by enabling a password. There are 2 access levels defined by 2 account names: Admin and User.

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

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, and email the password recovery token to flowsupport@kep.com to receive a temporary password from the support team. Access the COM CARD to set a new password.

Appendix A.8. Reading Data Arrays

- Connect to the COM CARD with a browser and click on the Diagnostics & Debugging button.
- Select the User Messages branch.
- Select the info tab.
- See which profile has been loaded.
 - Example: prof1b.csv
- In the address bar of the browser, type the IP address/filename.
 - Example: 192.168.1.24/prof1b.csv
- Press the enter key and save the file.
- Open the file and go to the server side map descriptors section.
- The map_descriptor_name, data_array_name, and data array_offset will be shown for each point.
- Go back to the browser and select the view branch.
- Select the data arrays branch.
- Select the data array that corresponds with the point that you want to monitor.
- View the offset that corresponds with the point that you want to monitor.



Appendix B. Vendor Information - KEP

NOTE: All Modbus TCP/IP registers are the same as the Modbus RTU registers for the serial device. If this point list is needed, contact the OEM. The Modbus TCP/IP node address of the device is also the same as the Modbus RTU node address.

Point Name	BACnet Object Type	BACnet Object ID	Metasys N2 Data Type	Metasys N2 Address	EIP Tag Name	DF1 Address	LonWorks Name	LonWorks SNVT
Heat Flow	AI	1	AI	1	Flt_XXX[000]	F11:000	nvoHeatFlo_XXX	SNVT_count f
Mass Flow	AI	2	AI	2	Flt_XXX[001]	F11:001	nvoMassFlo_XXX	SNVT_count f
STD Volume Flow	AI	3	AI	3	Flt_XXX[002]	F11:002	nvoSTDVolFlo_XXX	SNVT_count f
Volume Flow	AI	4	AI	4	Flt_XXX[003]	F11:003	nvoVolFlo_XXX	SNVT_count f
Temperature 1	AI	5	AI	5	Flt_XXX[004]	F11:004	nvoTmp1_XXX	SNVT_count f
Temperature 2	AI	6	AI	6	Flt_XXX[005]	F11:005	nvoTmp2_XXX	SNVT_count f
Delta Temperature	AI	7	AI	7	Flt_XXX[006]	F11:006	nvoDeltaTmp_XXX	SNVT_count f
Process Pressure	AI	8	AI	8	Flt_XXX[007]	F11:007	nvoProcesPrs_XXX	SNVT_count f
Diff. Pressure	AI	9	AI	9	Flt_XXX[008]	F11:008	nvoDiffPrs_XXX	SNVT_count f
Density	AI	10	AI	10	Flt_XXX[009]	F11:009	nvoDensity_XXX	SNVT_count f
Specific Enthalpy	AI	11	AI	11	Flt_XXX[010]	F11:010	nvoSpecEnth_XXX	SNVT_count f
Heat Total	AI	12	AI	12	Flt_XXX[011]	F11:011	nvoHeatTot_XXX	SNVT_count f
Mass Total	AI	13	AI	13	Flt_XXX[012]	F11:012	nvoMassTot_XXX	SNVT_count f
STD Volume Total	AI	14	AI	14	Flt_XXX[013]	F11:013	nvoSTDVolTot_XXX	SNVT_count f
Volume Total	AI	15	AI	15	Flt_XXX[014]	F11:014	nvoVolTot_XXX	SNVT_count f
Heat Grand Total	AI	16	AI	16	Flt_XXX[015]	F11:015	nvoHtTotal_XXX	SNVT_count f
Mass Grand Total	AI	17	AI	17	Flt_XXX[016]	F11:016	nvoMasTotal_XXX	SNVT_count f
STD Volume Grand Total	AI	18	AI	18	Flt_XXX[017]	F11:017	nvoSTDVIGrTo_XXX	SNVT_count f
Volume Grand Total	AI	19	AI	19	Flt_XXX[018]	F11:018	nvoVolTotal_XXX	SNVT_count f
Alarm Point 1	AI	20	AI	20	Flt_XXX[019]	F11:019	nvoAlmPt1_XXX	SNVT_count f
Alarm Point 2	AI	21	AI	21	Flt_XXX[020]	F11:020	nvoAlmPt2_XXX	SNVT_count f
Alarm Point 3	AI	22	AI	22	Flt_XXX[021]	F11:021	nvoAlmPt3_XXX	SNVT_count f
Year	AI	23	AI	23	U16_XXX[044]	N10:044	nvoYear_XXX	SNVT_count f
Month	AI	24	AI	24	U16_XXX[045]	N10:045	nvoMonth_XXX	SNVT_count f
Day	AI	25	AI	25	U16_XXX[046]	N10:046	nvoDay_XXX	SNVT_count f
Hours	AI	26	AI	26	U16_XXX[047]	N10:047	nvoHours_XXX	SNVT_count f
Min	AI	27	AI	27	U16_XXX[048]	N10:048	nvoMin_XXX	SNVT_count f
Sec	AI	28	AI	28	U16_XXX[049]	N10:049	nvoSec_XXX	SNVT_count f
Peak Demand	AI	29	AI	29	Flt_XXX[022]	F11:022	nvoPeakDmd_XXX	SNVT_count f
Demand Last Hour	AI	30	AI	30	Flt_XXX[023]	F11:023	nvoDmdLastHr_XXX	SNVT_count f
Viscosity	AI	31	AI	31	Flt_XXX[024]	F11:024	nvoViscosity_XXX	SNVT_count f
Absolute Viscosity	AI	32	AI	32	Flt_XXX[025]	F11:025	nvoAbsVisc_XXX	SNVT_count f
Relative Humidity	AI	33	AI	33	Flt_XXX[026]	F11:026	nvoRelHum_XXX	SNVT_count f
Power Loss Hour	AI	34	AI	34	Flt_XXX[060]	F11:060	nvoPwrLossHr_XXX	SNVT_count f
Power Loss Min	AI	35	AI	35	Flt_XXX[061]	F11:061	nvoPwrLossMn_XXX	SNVT_count f
Time base	AI	36	AI	36	U16_XXX[076]	N10:076	nvoTimebase_XXX	SNVT_count f
Heat Flow Units	AI	37	AI	37	U16_XXX[077]	N10:077	nvoHtFloUnt_XXX	SNVT_count f
Mass Flow Units	AI	38	AI	38	U16_XXX[078]	N10:078	nvoMasFlUnt_XXX	SNVT_count f
STD Flow Units	AI	39	AI	39	U16_XXX[079]	N10:079	nvoSTDFlUnt_XXX	SNVT_count f
Vol Flow Units	AI	40	AI	40	U16_XXX[080]	N10:080	nvoVolFlUnt_XXX	SNVT_count f
Temperature Units	AI	41	AI	41	U16_XXX[081]	N10:081	nvoTmpUnits_XXX	SNVT_count f
Pressure Units	AI	42	AI	42	U16_XXX[082]	N10:082	nvoPrsUnits_XXX	SNVT_count f
Density Units	AI	43	AI	43	U16_XXX[083]	N10:083	nvoDensUnt_XXX	SNVT_count f
Heat Total Units	AI	44	AI	44	U16_XXX[084]	N10:084	nvoHtTotUnt_XXX	SNVT_count f
Mass Total Units	AI	45	AI	45	U16_XXX[085]	N10:085	nvoMasTotUnt_XXX	SNVT_count f
STD Total Units	AI	46	AI	46	U16_XXX[086]	N10:086	nvoSTDTotUnt_XXX	SNVT_count f
Vol Total Units	AI	47	AI	47	U16_XXX[087]	N10:087	nvoVolTotUnt_XXX	SNVT_count f
Definition of Barrel	AI	48	AI	48	U16_XXX[088]	N10:088	nvoDefBarrel_XXX	SNVT_count f
Specific Enthalpy Units	AI	49	AI	49	U16_XXX[089]	N10:089	nvoSpEnthUnt_XXX	SNVT_count f
Length Units	AI	50	AI	50	U16_XXX[090]	N10:090	nvoLengthUnt_XXX	SNVT_count f
Calibration trail	AI	51	AI	51	U16_XXX[091]	N10:091	nvoCalTrail_XXX	SNVT_count f



Configuration trail	AI	52	AI	52	U16 XXX[092]	N10:092	nvoCfgTrail XXX	SNVT count f
Tag Number	AI	53	AI	53	U16 XXX[093]	N10:093	nvoTagNumber XXX	SNVT count f
Peak Year	AI	54	AI	54	U16 XXX[094]	N10:094	nvoPeakYear XXX	SNVT count f
Peak Month	AI	55	AI	55	U16 XXX[095]	N10:095	nvoPeakMonth XXX	SNVT count f
Peak Day	AI	56	AI	56	U16 XXX[096]	N10:096	nvoPeakDay XXX	SNVT count f
Peak Hours	AI	57	AI	57	U16 XXX[097]	N10:097	nvoPeakHours XXX	SNVT count f
Peak Min	AI	58	AI	58	U16 XXX[098]	N10:098	nvoPeakMin XXX	SNVT count f
Sys Alm Power Failure	BI	1	DI	1	Bit XXX[000]	B12:000	nvoAlmPwrFl XXX	SNVT switch
Sys Alm Watchdog	BI	2	DI	2	Bit XXX[001]	B12:001	nvoAlmWtchdog XXX	SNVT switch
Sys Alm Communication Error	BI	3	DI	3	Bit XXX[002]	B12:002	nvoAlmComErr XXX	SNVT switch
Sys Alm Calibration Error	BI	4	DI	4	Bit XXX[003]	B12:003	nvoAlmCalErr XXX	SNVT switch
Sys Alm Print Buffer Full	BI	5	DI	5	Bit XXX[004]	B12:004	nvoAlmPrBfFl XXX	SNVT switch
Sys Alm Totalizer Error	BI	6	DI	6	Bit XXX[005]	B12:005	nvoAlmTotErr XXX	SNVT switch
Sens/Proc Alm Wet Steam Alm	BI	7	DI	7	Bit XXX[006]	B12:006	nvoAlmWtStmAl XXX	SNVT switch
Sens/Proc Alm Off Fluid Table	BI	8	DI	8	Bit XXX[007]	B12:007	nvoAlmOfFlTbl XXX	SNVT switch
Sens/Proc Alm Flow In Over Range	BI	9	DI	9	Bit XXX[008]	B12:008	nvoAlmFlInOvr XXX	SNVT switch
Sens/Proc Alm Input 1 Over Range	BI	10	DI	10	Bit XXX[009]	B12:009	nvoAlmIn1Ovr XXX	SNVT switch
Sens/Proc Alm Input 2 Over Range	BI	11	DI	11	Bit XXX[010]	B12:010	nvoAlmIn2Ovr XXX	SNVT switch
Sens/Proc Alm Flow Loop Broken	BI	12	DI	12	Bit XXX[011]	B12:011	nvoAlmFlpBrk XXX	SNVT switch
Sens/Proc Alm Loop 1 Broken	BI	13	DI	13	Bit XXX[012]	B12:012	nvoAlmL1Brkn XXX	SNVT switch
Sens/Proc Alm Loop 2 Broken	BI	14	DI	14	Bit XXX[013]	B12:013	nvoAlmL2Brkn XXX	SNVT switch
Sens/Proc Alm RTD 1 Open	BI	15	DI	15	Bit XXX[014]	B12:014	nvoAlmRTD1Opn XXX	SNVT switch
Sens/Proc Alm RTD 1 Short	BI	16	DI	16	Bit XXX[015]	B12:015	nvoAlmRTD1Sht XXX	SNVT switch
Sens/Proc Alm RTD 2 Open	BI	17	DI	17	Bit XXX[016]	B12:016	nvoAlmRTD2Opn XXX	SNVT switch
Sens/Proc Alm RTD 2 Short	BI	18	DI	18	Bit XXX[017]	B12:017	nvoAlmRTD2Sht XXX	SNVT switch
Sens/Proc Alm Pulse Out Overrun	BI	19	DI	19	Bit XXX[018]	B12:018	nvoAlmPlsOtOv XXX	SNVT switch
Sens/Proc Alm Iout 1 Out Of Range	BI	20	DI	20	Bit XXX[019]	B12:019	nvoAlmI1OutRg XXX	SNVT switch
Sens/Proc Alm Iout 2 Out Of Range	BI	21	DI	21	Bit XXX[020]	B12:020	nvoAlmI2OutRg XXX	SNVT switch
Sens/Proc Alm Relay 1 Hi Alm	BI	22	DI	22	Bit XXX[021]	B12:021	nvoAlmR1HiAlm XXX	SNVT switch
Sens/Proc Alm Relay 1 Lo Alm	BI	23	DI	23	Bit XXX[022]	B12:022	nvoAlmR1LoAlm XXX	SNVT switch
Sens/Proc Alm Relay 2 Hi Alm	BI	24	DI	24	Bit XXX[023]	B12:023	nvoAlmR2HiAlm XXX	SNVT switch
Sens/Proc Alm Relay 2 Lo Alm	BI	25	DI	25	Bit XXX[024]	B12:024	nvoAlmR2LoAlm XXX	SNVT switch
Sens/Proc Alm Relay 3 Hi Alm	BI	26	DI	26	Bit XXX[025]	B12:025	nvoAlmR3HiAlm XXX	SNVT switch
Sens/Proc Alm Relay 3 Lo Alm	BI	27	DI	27	Bit XXX[026]	B12:026	nvoAlmR3LoAlm XXX	SNVT switch
Srvc Test 24Vdc Out Error	BI	28	DI	28	Bit XXX[027]	B12:027	nvo24VDCErr XXX	SNVT switch
Srvc Test Pulse In Error	BI	29	DI	29	Bit XXX[028]	B12:028	nvoPlsInErr XXX	SNVT switch
Srvc Test Input 1 Vin Error	BI	30	DI	30	Bit XXX[029]	B12:029	nvoIn1VinErr XXX	SNVT switch
Srvc Test Input 1 Iin Error	BI	31	DI	31	Bit XXX[030]	B12:030	nvoIn1IinErr XXX	SNVT switch
Srvc Test Input 2 Iin Error	BI	32	DI	32	Bit XXX[031]	B12:031	nvoIn2IinErr XXX	SNVT switch
Srvc Test Input 2 RTD Error	BI	33	DI	33	Bit XXX[032]	B12:032	nvoIn2RTDErr XXX	SNVT switch
Srvc Test Input 3 Iin Error	BI	34	DI	34	Bit XXX[033]	B12:033	nvoIn3IinErr XXX	SNVT switch
Srvc Test Input 3 RTD Error	BI	35	DI	35	Bit XXX[034]	B12:034	nvoIn3RTDErr XXX	SNVT switch
Srvc Test Pulse Out Error	BI	36	DI	36	Bit XXX[035]	B12:035	nvoPlsOutErr XXX	SNVT switch
Srvc Test Iout 1 Error	BI	37	DI	37	Bit XXX[036]	B12:036	nvoIout1Err XXX	SNVT switch
Srvc Test Iout 2 Error	BI	38	DI	38	Bit XXX[037]	B12:037	nvoIout2Err XXX	SNVT switch
Srvc Test Relay 1 Error	BI	39	DI	39	Bit XXX[038]	B12:038	nvoRelay1Err XXX	SNVT switch
Srvc Test Relay 2 Error	BI	40	DI	40	Bit XXX[039]	B12:039	nvoRelay2Err XXX	SNVT switch
Srvc Test RS-232 Error	BI	41	DI	41	Bit XXX[040]	B12:040	nvoRS232Err XXX	SNVT switch
Self Test A/D Malfunction	BI	42	DI	42	Bit XXX[041]	B12:041	nvoADMalfnct XXX	SNVT switch
Self Test Program Error	BI	43	DI	43	Bit XXX[042]	B12:042	nvoPrgmErr XXX	SNVT switch
Self Test Setup Data Lost	BI	44	DI	44	Bit XXX[043]	B12:043	nvoStupDtLst XXX	SNVT switch
Self Test Time Clock Lost	BI	45	DI	45	Bit XXX[044]	B12:044	nvoTmClkLst XXX	SNVT switch
Self Test Display Malfunction	BI	46	DI	46	Bit XXX[045]	B12:045	nvoDsplMalfn XXX	SNVT switch
Self Test Ram Malfunction	BI	47	DI	47	Bit XXX[046]	B12:046	nvoRAMMalfnc XXX	SNVT switch
Language Select	BV	48	DO	48	Bit XXX[047]	B12:047	nviLangSel XXX	SNVT switch
Reset Totalizers	BV	49	DO	49	Bit XXX[048]	B12:048	nviResTot XXX	SNVT switch
Reset All Error Codes	BV	50	DO	50	Bit XXX[049]	B12:049	nviResErrCod XXX	SNVT switch
Reset Alm 1	BV	51	DO	51	Bit XXX[050]	B12:050	nviResAlm1 XXX	SNVT switch
Reset Alm 2	BV	52	DO	52	Bit XXX[051]	B12:051	nviResAlm2 XXX	SNVT switch
Reset Alm 3	BV	53	DO	53	Bit XXX[052]	B12:052	nviResAlm3 XXX	SNVT switch
Print Transaction Document	BV	54	DO	54	Bit XXX[053]	B12:053	nviPrTmDoc XXX	SNVT switch
Reset Peak Demand	BV	55	DO	55	Bit XXX[054]	B12:054	nviResPkDmd XXX	SNVT switch
Reset Accumulated Power Loss	BV	56	DO	56	Bit XXX[055]	B12:055	nviResAcPrLs XXX	SNVT switch
Aux. Status Input	BI	57	DI	57	Bit XXX[056]	B12:056	nvoAuxStInp XXX	SNVT switch
Flowmeter Location	BI	58	DI	58	Bit XXX[062]	B12:062	nvoFlmMtrLoc XXX	SNVT switch



Appendix B.2. SUPERtrol_I Modbus RTU Mappings to BACnet, Metasys N2, EtherNet/IP, DF1, Modbus TCP/IP and LonWorks

Point Name	BACnet Object Type	BACnet Object ID	Metasys N2 Data Type	Metasys N2 Address	EIP Tag Name	DF1 Address	LonWorks Name	LonWorks SNVT
Volume Flow	AI	1	AI	1	Fit_XXX[000]	F11:000	nvoVolFlow_XXX	SNVT_count_f
CorVol or Mass Flow	AI	2	AI	2	Fit_XXX[001]	F11:001	nvoCorVol_XXX	SNVT_count_f
Total	AI	3	AI	3	Fit_XXX[002]	F11:002	nvoTotal_XXX	SNVT_count_f
Grand Total	AI	4	AI	4	Fit_XXX[003]	F11:003	nvoGrndTot_XXX	SNVT_count_f
Temperature	AI	5	AI	5	Fit_XXX[004]	F11:004	nvoTemp_XXX	SNVT_count_f
Density	AI	6	AI	6	Fit_XXX[005]	F11:005	nvoDensity_XXX	SNVT_count_f
Preset 1	AV	7	AO	7	Fit_XXX[006]	F11:006	nviPreset1_XXX	SNVT_count_f
Preset 2	AV	8	AO	8	Fit_XXX[007]	F11:007	nviPreset2_XXX	SNVT_count_f
Preset 3	AV	9	AO	9	Fit_XXX[008]	F11:008	nviPreset3_XXX	SNVT_count_f
Preset 4	AV	10	AO	10	Fit_XXX[009]	F11:009	nviPreset4_XXX	SNVT_count_f
Year	AI	11	AI	11	U16_XXX[020]	N10:020	nvoYear_XXX	SNVT_count_f
Month	AI	12	AI	12	U16_XXX[021]	N10:021	nvoMonth_XXX	SNVT_count_f
Day	AI	13	AI	13	U16_XXX[022]	N10:022	nvoDay_XXX	SNVT_count_f
Hours	AI	14	AI	14	U16_XXX[023]	N10:023	nvoHours_XXX	SNVT_count_f
Minutes	AI	15	AI	15	U16_XXX[024]	N10:024	nvoMinutes_XXX	SNVT_count_f
Seconds	AI	16	AI	16	U16_XXX[025]	N10:025	nvoSeconds_XXX	SNVT_count_f
Viscosity	AI	17	AI	17	Fit_XXX[010]	F11:010	nvoViscosity_XXX	SNVT_count_f
Transaction Number	AI	18	AI	18	U16_XXX[028]	N10:028	nvoTransNum_XXX	SNVT_count_f
Fluid Number	AV	19	AO	19	U16_XXX[044]	N10:044	nviFluidNum_XXX	SNVT_count_f
Error-Pulse Out Overflow	BI	1	DI	1	Bit_XXX[000]	B12:000	nvoPlsOutOvr_XXX	SNVT_switch
Alarm-Flow Rate Alarm Low	BI	2	DI	2	Bit_XXX[001]	B12:001	nvoFIRtAlmLo_XXX	SNVT_switch
Alarm-Flow Rate Alarm High	BI	3	DI	3	Bit_XXX[002]	B12:002	nvoFIRtAlmHi_XXX	SNVT_switch
Alarm-Temp Alarm Low	BI	4	DI	4	Bit_XXX[003]	B12:003	nvoTempAlmLo_XXX	SNVT_switch
Alarm-Temp Alarm High	BI	5	DI	5	Bit_XXX[004]	B12:004	nvoTempAlmHi_XXX	SNVT_switch
Alarm-Density Alarm Low	BI	6	DI	6	Bit_XXX[005]	B12:005	nvoDensAlmLo_XXX	SNVT_switch
Alarm-Density Alarm High	BI	7	DI	7	Bit_XXX[006]	B12:006	nvoDensAlmHi_XXX	SNVT_switch
Alarm-Batch Overrun Alarm	BI	8	DI	8	Bit_XXX[013]	B12:013	nvoBtcOvrAlm_XXX	SNVT_switch
Error-Software Error Reset	BI	9	DI	9	Bit_XXX[014]	B12:014	nvoSwErrRes_XXX	SNVT_switch
Error-Extended PFI Lockup	BI	10	DI	10	Bit_XXX[015]	B12:015	nvoExpFILck_XXX	SNVT_switch
Error-Cal Checksum Error	BI	11	DI	11	Bit_XXX[018]	B12:018	nvoCalChkErr_XXX	SNVT_switch
Error-Modem Not Found	BI	12	DI	12	Bit_XXX[019]	B12:019	nvoModmNtFnd_XXX	SNVT_switch
Error-Setup Checksum Error	BI	13	DI	13	Bit_XXX[020]	B12:020	nvoSetChkErr_XXX	SNVT_switch
Error-Rate Overflow Error	BI	14	DI	14	Bit_XXX[021]	B12:021	nvoRtOvrErr_XXX	SNVT_switch
Error-A to D Not Converting	BI	15	DI	15	Bit_XXX[022]	B12:022	nvoAtDNtCnv_XXX	SNVT_switch
Error-Aux Input Too Low	BI	16	DI	16	Bit_XXX[023]	B12:023	nvoAuxIn2Lo_XXX	SNVT_switch
Error-Aux Input Too High	BI	17	DI	17	Bit_XXX[024]	B12:024	nvoAuxIn2Hi_XXX	SNVT_switch
Error-Flow Input Too Low	BI	18	DI	18	Bit_XXX[025]	B12:025	nvoFlIn2Lo_XXX	SNVT_switch
Error-Flow Input Too High	BI	19	DI	19	Bit_XXX[026]	B12:026	nvoFlIn2Hi_XXX	SNVT_switch
Error-Pulse Security Error	BI	20	DI	20	Bit_XXX[027]	B12:027	nvoPlsSecErr_XXX	SNVT_switch
Error-RTD Out Of Range	BI	21	DI	21	Bit_XXX[028]	B12:028	nvoRTDOutRng_XXX	SNVT_switch
Warning-Battery Low Warning	BI	22	DI	22	Bit_XXX[029]	B12:029	nvoBatLoWarn_XXX	SNVT_switch
Error-Time Clock Error	BI	23	DI	23	Bit_XXX[030]	B12:030	nvoTmeClkErr_XXX	SNVT_switch
Warning-Totalizer Rollover	BI	24	DI	24	Bit_XXX[031]	B12:031	nvoTotRlOvr_XXX	SNVT_switch
Command-Reset Total	BV	25	DO	25	Bit_XXX[032]	B12:032	nviResetTot_XXX	SNVT_switch
Command-Reset Errors	BV	26	DO	26	Bit_XXX[033]	B12:033	nviResetErr_XXX	SNVT_switch
Command-Print Command	BV	27	DO	27	Bit_XXX[034]	B12:034	nviPrintCmd_XXX	SNVT_switch
Status-Instr Type Rate/Total or Batch	BI	28	DI	28	Bit_XXX[035]	B12:035	nvoInstTypRt_XXX	SNVT_switch
Command-Start Batch Command	BV	29	DO	29	Bit_XXX[036]	B12:036	nviSttBtcCmd_XXX	SNVT_switch
Command-Stop Batch Command	BV	30	DO	30	Bit_XXX[037]	B12:037	nviStpBtcCmd_XXX	SNVT_switch
Command-Clear Batch Command	BV	31	DO	31	Bit_XXX[038]	B12:038	nviClrBtcCmd_XXX	SNVT_switch
Status-Batch Filling Status	BI	32	DI	32	Bit_XXX[039]	B12:039	nvoBtcFillSt_XXX	SNVT_switch
Status-Batch Stopped Status	BI	33	DI	33	Bit_XXX[040]	B12:040	nvoBtcStpSt_XXX	SNVT_switch
Status-Batch Idle Status	BI	34	DI	34	Bit_XXX[041]	B12:041	nvoBtcIdlSt_XXX	SNVT_switch
Command-Relay 1 Command	BV	35	DO	35	Bit_XXX[042]	B12:042	nviRel1Cmd_XXX	SNVT_switch
Command-Relay 2 Command	BV	36	DO	36	Bit_XXX[043]	B12:043	nviRel2Cmd_XXX	SNVT_switch
Command-Relay 3 Command	BV	37	DO	37	Bit_XXX[044]	B12:044	nviRel3Cmd_XXX	SNVT_switch
Command-Relay 4 Command	BV	38	DO	38	Bit_XXX[045]	B12:045	nviRel4Cmd_XXX	SNVT_switch
Status-Relay 1 Status	BI	39	DI	39	Bit_XXX[046]	B12:046	nvoRel1Stat_XXX	SNVT_switch
Status-Relay 2 Status	BI	40	DI	40	Bit_XXX[047]	B12:047	nvoRel2Stat_XXX	SNVT_switch
Status-Relay 3 Status	BI	41	DI	41	Bit_XXX[048]	B12:048	nvoRel3Stat_XXX	SNVT_switch
Status-Relay 4 Status	BI	42	DI	42	Bit_XXX[049]	B12:049	nvoRel4Stat_XXX	SNVT_switch
Status-Control 1 Status	BI	43	DI	43	Bit_XXX[050]	B12:050	nvoCtrl1Stat_XXX	SNVT_switch
Status-Control 2 Status	BI	44	DI	44	Bit_XXX[051]	B12:051	nvoCtrl2Stat_XXX	SNVT_switch
Status-Control 3 Status	BI	45	DI	45	Bit_XXX[052]	B12:052	nvoCtrl3Stat_XXX	SNVT_switch



Appendix B.3. LEVELtrol II Modbus RTU Mappings to BACnet, Metasys N2, EtherNet/IP, DF1, Modbus TCP/IP and LonWorks

Point Name	BACnet Object Type	BACnet Object ID	Metasys N2 Data Type	Metasys N2 Address	EIP Tag Name	DF1 Address	LonWorks Name	LonWorks SNVT
Level	AI	1	AI	1	Fit_XXX[000]	F11:000	nvoLevel_XXX	SNVT_count_f
Total	AI	2	AI	2	Fit_XXX[002]	F11:002	nvoTotal_XXX	SNVT_count_f
Grand Total	AI	3	AI	3	Fit_XXX[003]	F11:003	nvoGrandTot_XXX	SNVT_count_f
Temperature	AI	4	AI	4	Fit_XXX[004]	F11:004	nvoTemp_XXX	SNVT_count_f
Density	AI	5	AI	5	Fit_XXX[005]	F11:005	nvoDensity_XXX	SNVT_count_f
Preset 1	AV	6	AO	6	Fit_XXX[006]	F11:006	nviPreset1_XXX	SNVT_count_f
Preset 2	AV	7	AO	7	Fit_XXX[007]	F11:007	nviPreset2_XXX	SNVT_count_f
Preset 3	AV	8	AO	8	Fit_XXX[008]	F11:008	nviPreset3_XXX	SNVT_count_f
Preset 4	AV	9	AO	9	Fit_XXX[009]	F11:009	nviPreset4_XXX	SNVT_count_f
Year	AI	10	AI	10	U16_XXX[020]	N10:020	nvoYear_XXX	SNVT_count_f
Month	AI	11	AI	11	U16_XXX[021]	N10:021	nvoMonth_XXX	SNVT_count_f
Day	AI	12	AI	12	U16_XXX[022]	N10:022	nvoDay_XXX	SNVT_count_f
Hours	AI	13	AI	13	U16_XXX[023]	N10:023	nvoHours_XXX	SNVT_count_f
Minutes	AI	14	AI	14	U16_XXX[024]	N10:024	nvoMinutes_XXX	SNVT_count_f
Seconds	AI	15	AI	15	U16_XXX[025]	N10:025	nvoSeconds_XXX	SNVT_count_f
Transaction Number	AI	16	AI	16	U16_XXX[028]	N10:028	nvoTransNum_XXX	SNVT_count_f
Error-Pulse Out Overflow	BI	1	DI	1	Bit_XXX[000]	B12:000	nvoPlsOutOvr_XXX	SNVT_switch
Error-A to D Not Converting	BI	2	DI	2	Bit_XXX[022]	B12:022	nvoAtDntConv_XXX	SNVT_switch
Error-Aux Input Too Low	BI	3	DI	3	Bit_XXX[023]	B12:023	nvoAuxIn2Lo_XXX	SNVT_switch
Error-Aux Input Too High	BI	4	DI	4	Bit_XXX[024]	B12:024	nvoAuxIn2Hi_XXX	SNVT_switch
Error-Level Input Too Low	BI	5	DI	5	Bit_XXX[025]	B12:025	nvoLvIn2Lo_XXX	SNVT_switch
Error-Level Input Too High	BI	6	DI	6	Bit_XXX[026]	B12:026	nvoLvIn2Hi_XXX	SNVT_switch
Error-RTD Out Of Range	BI	7	DI	7	Bit_XXX[028]	B12:028	nvoRTDOutRng_XXX	SNVT_switch
Warning-Battery Low Warning	BI	8	DI	8	Bit_XXX[029]	B12:029	nvoBattLoWrn_XXX	SNVT_switch
Command-Reset Errors	BV	9	DO	9	Bit_XXX[033]	B12:033	nviResErr_XXX	SNVT_switch
Command-Print Command	BV	10	DO	10	Bit_XXX[034]	B12:034	nviPrintCmd_XXX	SNVT_switch
Status-Instr Type Rate/Total or Batch	BI	11	DI	11	Bit_XXX[035]	B12:035	nvoInsTypRt_XXX	SNVT_switch
Command-Start Batch Command	BV	12	DO	12	Bit_XXX[036]	B12:036	nviSttBtcCmd_XXX	SNVT_switch
Command-Stop Batch Command	BV	13	DO	13	Bit_XXX[037]	B12:037	nviStpBtcCmd_XXX	SNVT_switch
Command-Clear Batch Command	BV	14	DO	14	Bit_XXX[038]	B12:038	nviClrBtcCmd_XXX	SNVT_switch
Status-Batch Filling Status	BI	15	DI	15	Bit_XXX[039]	B12:039	nvoBtcFillSt_XXX	SNVT_switch
Status-Batch Stopped Status	BI	16	DI	16	Bit_XXX[040]	B12:040	nvoBtcStopSt_XXX	SNVT_switch
Status-Batch Idle Status	BI	17	DI	17	Bit_XXX[041]	B12:041	nvoBtcIdleSt_XXX	SNVT_switch
Status-Relay 1 Status	BI	18	DI	18	Bit_XXX[046]	B12:046	nvoRel1Stat_XXX	SNVT_switch
Status-Relay 2 Status	BI	19	DI	19	Bit_XXX[047]	B12:047	nvoRel2Stat_XXX	SNVT_switch
Status-Relay 3 Status	BI	20	DI	20	Bit_XXX[048]	B12:048	nvoRel3Stat_XXX	SNVT_switch
Status-Relay 4 Status	BI	21	DI	21	Bit_XXX[049]	B12:049	nvoRel4Stat_XXX	SNVT_switch
Status-Control 1 Status	BI	22	DI	22	Bit_XXX[050]	B12:050	nvoCtrl1Stat_XXX	SNVT_switch
Status-Control 2 Status	BI	23	DI	23	Bit_XXX[051]	B12:051	nvoCtrl2Stat_XXX	SNVT_switch
Status-Control 3 Status	BI	24	DI	24	Bit_XXX[052]	B12:052	nvoCtrl3Stat_XXX	SNVT_switch



Appendix B.4. ES762-ST2 Modbus RTU Mappings to BACnet, Metasys N2, EtherNet/IP, DF1, Modbus TCP/IP and LonWorks

Point Name	BACnet Object Type	BACnet Object ID	Metasys N2 Data Type	Metasys N2 Address	EIP Tag Name	DF1 Address	LonWorks Name	LonWorks SNVT
Heat Flow	AI	1	AI	1	Fit_XXX[000]	F10:000	nvoHeatFlow_XXX	SNVT count f
Mass Flow	AI	2	AI	2	Fit_XXX[001]	F10:001	nvoMassFlow_XXX	SNVT count f
Aux3 – Aux 4	AI	3	AI	3	Fit_XXX[002]	F10:002	nvoAux3Aux4_XXX	SNVT count f
Volume Flow	AI	4	AI	4	Fit_XXX[003]	F10:003	nvoVolFlow_XXX	SNVT count f
Temperature 1	AI	5	AI	5	Fit_XXX[004]	F10:004	nvoTmp1_XXX	SNVT count f
Temperature 2	AI	6	AI	6	Fit_XXX[005]	F10:005	nvoTmp2_XXX	SNVT count f
Delta Temperature	AI	7	AI	7	Fit_XXX[006]	F10:006	nvoDeltaTmp_XXX	SNVT count f
Process Pressure	AI	8	AI	8	Fit_XXX[007]	F10:007	nvoProcPrs_XXX	SNVT count f
Diff. Pressure	AI	9	AI	9	Fit_XXX[008]	F10:008	nvoDiffPrs_XXX	SNVT count f
Density	AI	10	AI	10	Fit_XXX[009]	F10:009	nvoDensity_XXX	SNVT count f
Specific Enthalpy	AI	11	AI	11	Fit_XXX[010]	F10:010	nvoSpecEnt_XXX	SNVT count f
Heat Total	AI	12	AI	12	Fit_XXX[011]	F10:011	nvoHeatTot_XXX	SNVT count f
Mass Total	AI	13	AI	13	Fit_XXX[012]	F10:012	nvoMassTot_XXX	SNVT count f
Aux Total 1	AI	14	AI	14	Fit_XXX[013]	F10:013	nvoAuxTot1_XXX	SNVT count f
Volume Total	AI	15	AI	15	Fit_XXX[014]	F10:014	nvoVolTot_XXX	SNVT count f
Heat Grand Total	AI	16	AI	16	Fit_XXX[015]	F10:015	nvoHtGrdTot_XXX	SNVT count f
Mass Grand Total	AI	17	AI	17	Fit_XXX[016]	F10:016	nvoMsGrdTot_XXX	SNVT count f
Aux Grand Total 1	AI	18	AI	18	Fit_XXX[017]	F10:017	nvoAxGrdTot1_XXX	SNVT count f
Volume Grand Total	AI	19	AI	19	Fit_XXX[018]	F10:018	nvoVlGrdTot_XXX	SNVT count f
Alarm Point 1	AI	20	AI	20	Fit_XXX[019]	F10:019	nvoAlmPt1_XXX	SNVT count f
Alarm Point 2	AI	21	AI	21	Fit_XXX[020]	F10:020	nvoAlmPt2_XXX	SNVT count f
Alarm Point 3	AI	22	AI	22	Fit_XXX[021]	F10:021	nvoAlmPt3_XXX	SNVT count f
Year	AI	23	AI	23	U16_XXX[044]	N11:044	nvoYear_XXX	SNVT count f
Month	AI	24	AI	24	U16_XXX[045]	N11:045	nvoMonth_XXX	SNVT count f
Day	AI	25	AI	25	U16_XXX[046]	N11:046	nvoDay_XXX	SNVT count f
Hours	AI	26	AI	26	U16_XXX[047]	N11:047	nvoHours_XXX	SNVT count f
Min	AI	27	AI	27	U16_XXX[048]	N11:048	nvoMin_XXX	SNVT count f
Sec	AI	28	AI	28	U16_XXX[049]	N11:049	nvoSec_XXX	SNVT count f
Peak Demand	AI	29	AI	29	Fit_XXX[022]	F10:022	nvoPeakDem_XXX	SNVT count f
Demand Last	AI	30	AI	30	Fit_XXX[023]	F10:023	nvoDemLast_XXX	SNVT count f
Viscosity	AI	31	AI	31	Fit_XXX[024]	F10:024	nvoVisc_XXX	SNVT count f
Abs. Viscosity	AI	32	AI	32	Fit_XXX[025]	F10:025	nvoAbsVisc_XXX	SNVT count f
Aux 4	AI	33	AI	33	Fit_XXX[026]	F10:026	nvoAux4_XXX	SNVT count f
Power Lost Hour	AI	34	AI	34	U16_XXX[060]	N11:060	nvoPwrLstHr_XXX	SNVT count f
Power Lost Min.	AI	35	AI	35	U16_XXX[061]	N11:061	nvoPwrLstMin_XXX	SNVT count f
Aux 3	AI	36	AI	36	Fit_XXX[027]	F10:027	nvoAux3_XXX	SNVT count f
Aux 2 Total	AI	37	AI	37	Fit_XXX[028]	F10:028	nvoAux2Tot_XXX	SNVT count f
Aux 2 Grand Total	AI	38	AI	38	Fit_XXX[029]	F10:029	nvoAx2GrdTot_XXX	SNVT count f
Aux 3 Total	AI	39	AI	39	Fit_XXX[030]	F10:030	nvoAux3Tot_XXX	SNVT count f
Aux 3 Grand Total	AI	40	AI	40	Fit_XXX[031]	F10:031	nvoAx3GrdTot_XXX	SNVT count f
Aux 4 Total	AI	41	AI	41	Fit_XXX[032]	F10:032	nvoAux4Tot_XXX	SNVT count f
Aux 4 Grand Total	AI	42	AI	42	Fit_XXX[033]	F10:033	nvoAx4GrdTot_XXX	SNVT count f
Time base	AI	43	AI	43	U16_XXX[076]	N11:076	nvoTimebase_XXX	SNVT count f
Heat Flow Units	AI	44	AI	44	U16_XXX[077]	N11:077	nvoHeatFlUnt_XXX	SNVT count f
Mass Flow Units	AI	45	AI	45	U16_XXX[078]	N11:078	nvoMassFlUnt_XXX	SNVT count f
Corrected Volume Flow Units	AI	46	AI	46	U16_XXX[079]	N11:079	nvoCorVlFlUnt_XXX	SNVT count f
Vol. Flow Units	AI	47	AI	47	U16_XXX[080]	N11:080	nvoVolFlwUnt_XXX	SNVT count f
Temperature Units	AI	48	AI	48	U16_XXX[081]	N11:081	nvoTmpUnits_XXX	SNVT count f
Pressure Units	AI	49	AI	49	U16_XXX[082]	N11:082	nvoPrsUnits_XXX	SNVT count f
Density Units	AI	50	AI	50	U16_XXX[083]	N11:083	nvoDenUnits_XXX	SNVT count f
Heat Total Units	AI	51	AI	51	U16_XXX[084]	N11:084	nvoHeatToUnt_XXX	SNVT count f
Mass Total Units	AI	52	AI	52	U16_XXX[085]	N11:085	nvoMassToUnt_XXX	SNVT count f
Vol. Total Units	AI	53	AI	53	U16_XXX[087]	N11:087	nvoVolTotUnt_XXX	SNVT count f
Barrel Type Units	AI	54	AI	54	U16_XXX[088]	N11:088	nvoBrTypUnt_XXX	SNVT count f
Specific Enthalpy Units	AI	55	AI	55	U16_XXX[089]	N11:089	nvoSpcEntUnt_XXX	SNVT count f
Length Units	AI	56	AI	56	U16_XXX[090]	N11:090	nvoLngtUnits_XXX	SNVT count f
Calibration trail	AI	57	AI	57	U16_XXX[091]	N11:091	nvoCalibTrail_XXX	SNVT count f
Configuration trail	AI	58	AI	58	U16_XXX[092]	N11:092	nvoCfgTrail_XXX	SNVT count f
Tag Number	AI	59	AI	59	U16_XXX[093]	N11:093	nvoTagNumber_XXX	SNVT count f
Peak Year	AI	60	AI	60	U16_XXX[094]	N11:094	nvoPeakYear_XXX	SNVT count f
Peak Month	AI	61	AI	61	U16_XXX[095]	N11:095	nvoPeakMnth_XXX	SNVT count f
Peak Day	AI	62	AI	62	U16_XXX[096]	N11:096	nvoPeakDay_XXX	SNVT count f
Peak Hours	AI	63	AI	63	U16_XXX[097]	N11:097	nvoPeakHrs_XXX	SNVT count f
Peak Min	AI	64	AI	64	U16_XXX[098]	N11:098	nvoPeakMin_XXX	SNVT count f
Sys Alm Power Failure	BI	1	DI	1	Bit_XXX[000]	B12:000	nvoSysAlmPwFl_XXX	SNVT switch
Sys Alm Watchdog	BI	2	DI	2	Bit_XXX[001]	B12:001	nvoSysAlmWtdg_XXX	SNVT switch
Sys Alm Communication Error	BI	3	DI	3	Bit_XXX[002]	B12:002	nvoSysAlmCmEr_XXX	SNVT switch
Sys Alm Calibration Error	BI	4	DI	4	Bit_XXX[003]	B12:003	nvoSysAlmClcr_XXX	SNVT switch
Sys Alm Print Buffer Full	BI	5	DI	5	Bit_XXX[004]	B12:004	nvoSysAlmPrBf_XXX	SNVT switch
Sys Alm Totalizer Error	BI	6	DI	6	Bit_XXX[005]	B12:005	nvoSysAlmToEr_XXX	SNVT switch



Sen/Proc Alm Wet Steam Alm	BI	7	DI	7	Bit_XXX[006]	B12:006	nvoSnAIWtStA_XXX	SNVT_switch
Sen/Proc Alm Off Fluid Table	BI	8	DI	8	Bit_XXX[007]	B12:007	nvoSnAIOfFTb_XXX	SNVT_switch
Sen/Proc Alm Flow In Over Range	BI	9	DI	9	Bit_XXX[008]	B12:008	nvoSnAIFInO_XXX	SNVT_switch
Sen/Proc Alm Input 1 Over Range	BI	10	DI	10	Bit_XXX[009]	B12:009	nvoSnAIIn1Ov_XXX	SNVT_switch
Sen/Proc Alm Input 2 Over Range	BI	11	DI	11	Bit_XXX[010]	B12:010	nvoSnAIIn2Ov_XXX	SNVT_switch
Sen/Proc Alm Flow Loop Broken	BI	12	DI	12	Bit_XXX[011]	B12:011	nvoSnAIFILBr_XXX	SNVT_switch
Sen/Proc Alm Loop 1 Broken	BI	13	DI	13	Bit_XXX[012]	B12:012	nvoSnAIL1Brk_XXX	SNVT_switch
Sen/Proc Alm Loop 2 Broken	BI	14	DI	14	Bit_XXX[013]	B12:013	nvoSnAIL2Brk_XXX	SNVT_switch
Sen/Proc Alm RTD 1 Open	BI	15	DI	15	Bit_XXX[014]	B12:014	nvoSnAIR1Opn_XXX	SNVT_switch
Sen/Proc Alm RTD 1 Short	BI	16	DI	16	Bit_XXX[015]	B12:015	nvoSnAIR1Sht_XXX	SNVT_switch
Sen/Proc Alm RTD 2 Open	BI	17	DI	17	Bit_XXX[016]	B12:016	nvoSnAIR2Opn_XXX	SNVT_switch
Sen/Proc Alm RTD 2 Short	BI	18	DI	18	Bit_XXX[017]	B12:017	nvoSnAIR2Sht_XXX	SNVT_switch
Sen/Proc Alm Pulse Out Overrun	BI	19	DI	19	Bit_XXX[018]	B12:018	nvoSnAIPIOv_XXX	SNVT_switch
Sen/Proc Alm Iout 1 Out Of Range	BI	20	DI	20	Bit_XXX[019]	B12:019	nvoSnAI1Rng_XXX	SNVT_switch
Sen/Proc Alm Iout 2 Out Of Range	BI	21	DI	21	Bit_XXX[020]	B12:020	nvoSnAI2Rng_XXX	SNVT_switch
Sen/Proc Alm Relay 1 Hi Alm	BI	22	DI	22	Bit_XXX[021]	B12:021	nvoSnAIR1HiA_XXX	SNVT_switch
Sen/Proc Alm Relay 1 Lo Alm	BI	23	DI	23	Bit_XXX[022]	B12:022	nvoSnAIR1LoA_XXX	SNVT_switch
Sen/Proc Alm Relay 2 Hi Alm	BI	24	DI	24	Bit_XXX[023]	B12:023	nvoSnAIR2HiA_XXX	SNVT_switch
Sen/Proc Alm Relay 2 Lo Alm	BI	25	DI	25	Bit_XXX[024]	B12:024	nvoSnAIR2LoA_XXX	SNVT_switch
Sen/Proc Alm Relay 3 Hi Alm	BI	26	DI	26	Bit_XXX[025]	B12:025	nvoSnAIR3HiA_XXX	SNVT_switch
Sen/Proc Alm Relay 3 Lo Alm	BI	27	DI	27	Bit_XXX[026]	B12:026	nvoSnAIR3LoA_XXX	SNVT_switch
Servc Test 24Vdc Out Error	BI	28	DI	28	Bit_XXX[027]	B12:027	nvoSvc24VdcE_XXX	SNVT_switch
Servc Test Pulse In Error	BI	29	DI	29	Bit_XXX[028]	B12:028	nvoSvcPInEr_XXX	SNVT_switch
Servc Test Input 1 Vin Error	BI	30	DI	30	Bit_XXX[029]	B12:029	nvoSvIn1VinE_XXX	SNVT_switch
Servc Test Input 1 lin Error	BI	31	DI	31	Bit_XXX[030]	B12:030	nvoSvIn1linE_XXX	SNVT_switch
Servc Test Input 2 lin Error	BI	32	DI	32	Bit_XXX[031]	B12:031	nvoSvIn2linE_XXX	SNVT_switch
Servc Test Input 2 RTD Error	BI	33	DI	33	Bit_XXX[032]	B12:032	nvoSvIn2RTDE_XXX	SNVT_switch
Servc Test Input 3 lin Error	BI	34	DI	34	Bit_XXX[033]	B12:033	nvoSvIn3linE_XXX	SNVT_switch
Servc Test Input 3 RTD Error	BI	35	DI	35	Bit_XXX[034]	B12:034	nvoSvIn3RTDE_XXX	SNVT_switch
Servc Test Pulse Out Error	BI	36	DI	36	Bit_XXX[035]	B12:035	nvoSvcPlsOtE_XXX	SNVT_switch
Servc Test Iout 1 Error	BI	37	DI	37	Bit_XXX[036]	B12:036	nvoSvclout1E_XXX	SNVT_switch
Servc Test Iout 2 Error	BI	38	DI	38	Bit_XXX[037]	B12:037	nvoSvclout2E_XXX	SNVT_switch
Servc Test Relay 1 Error	BI	39	DI	39	Bit_XXX[038]	B12:038	nvoSvcRel1Er_XXX	SNVT_switch
Servc Test Relay 2 Error	BI	40	DI	40	Bit_XXX[039]	B12:039	nvoSvcRel2Er_XXX	SNVT_switch
Servc Test RS232 Error	BI	41	DI	41	Bit_XXX[040]	B12:040	nvoSRS232Err_XXX	SNVT_switch
Self Test A/D Malfunction	BI	42	DI	42	Bit_XXX[041]	B12:041	nvoSfADMalF_XXX	SNVT_switch
Self Test Program Error	BI	43	DI	43	Bit_XXX[042]	B12:042	nvoSfPrgErr_XXX	SNVT_switch
Self Test Setup Data Lost	BI	44	DI	44	Bit_XXX[043]	B12:043	nvoSfSetDat_XXX	SNVT_switch
Self Test Time Clock Lost	BI	45	DI	45	Bit_XXX[044]	B12:044	nvoSfTmClcl_XXX	SNVT_switch
Self Test Display Malfunction	BI	46	DI	46	Bit_XXX[045]	B12:045	nvoSfDspMal_XXX	SNVT_switch
Self Test Ram Malfunction	BI	47	DI	47	Bit_XXX[046]	B12:046	nvoSfRAMMal_XXX	SNVT_switch
Reset Totalizer	BV	48	DO	48	Bit_XXX[048]	B12:048	nvoResTot_XXX	SNVT_switch
Reset All Error Codes	BV	49	DO	49	Bit_XXX[049]	B12:049	nvoResAlErCd_XXX	SNVT_switch
Reset Alm 1	BV	50	DO	50	Bit_XXX[050]	B12:050	nvoResAlm1_XXX	SNVT_switch
Reset Alm 2	BV	51	DO	51	Bit_XXX[051]	B12:051	nvoResAlm2_XXX	SNVT_switch
Reset Alm 3	BV	52	DO	52	Bit_XXX[052]	B12:052	nvoResAlm3_XXX	SNVT_switch
Print Transaction Document	BV	53	DO	53	Bit_XXX[053]	B12:053	nvoPrTrnDoc_XXX	SNVT_switch
Reset Peak	BV	54	DO	54	Bit_XXX[054]	B12:054	nvoResetPeak_XXX	SNVT_switch
Reset Power	BV	55	DO	55	Bit_XXX[055]	B12:055	nvoResetPwr_XXX	SNVT_switch
I/O	BV	56	DO	56	Bit_XXX[056]	B12:056	nvoIO_XXX	SNVT_switch
Reset Aux. 1 Total	BV	57	DO	57	Bit_XXX[057]	B12:057	nvoResAux1To_XXX	SNVT_switch
Loop 3 Over Range	BI	58	DI	58	Bit_XXX[058]	B12:058	nvoL3OvrRng_XXX	SNVT_switch
Loop 4 Over Range	BI	49	DI	49	Bit_XXX[059]	B12:059	nvoL4OvrRng_XXX	SNVT_switch
Loop 3 Broken	BI	50	DI	50	Bit_XXX[060]	B12:060	nvoL3Broken_XXX	SNVT_switch
Loop 4 Broken	BI	51	DI	51	Bit_XXX[061]	B12:061	nvoL4Broken_XXX	SNVT_switch
Flowmeter Location	BI	52	DI	52	Bit_XXX[062]	B12:062	nvoFIMtrLoc_XXX	SNVT_switch

Appendix C. Reference

Appendix C.1. Specifications



	COM CARD Option 3	COM CARD Option 4
Electrical Connections	One 3-pin Phoenix connector with RS-485 port (+ / - / gnd) One Ethernet 10/100 BaseT port	One 2-pin Phoenix connector with: One FTT-10 LonWorks port 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	LonMark Certified
Power Requirements	5V DC	
Physical Dimensions	6.9 x 3.0 x 2.0 cm	8.5 x 3.0 x 2.0 cm
	2.7 x 1.2 x 0.8 in.	3.3 x 1.2 x .08 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 26: Specifications		

Appendix C.1.1. Compliance with UL Regulations

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

- 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 COM CARD
- 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.



Appendix D. Limited 2 Year Warranty

Kessler-Ellis Products (KEP) warrants its products to be free from defects in workmanship or material under normal use and service for two years after date of shipment. Sierra Monitor Corporation 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 KEP 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 Sierra Monitor Corporation'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 KEP'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, Sierra Monitor Corporation 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 KEP for damages including, but not limited to, consequential damages arising out of/or in connection with the use or performance of the product.