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FRIO SMC GATEWAY SETUP GUIDE

The Frio S1 Heat Trace Controller can is capable of BACnet IP and BACnet MS/TP communication via an SMC Gateway (FS-EZ3-MOD-BAC). The Frio S1 features a Modbus RTU Slave Interface to allow communication to the SMC Gateway. Up to 32 S1 controllers can be serially connected to one SMC Gateway. A list of BACnet objects available for each Frio S1 controller is included at the end of this document.

This setup guide provides users with the required information to configure the SMC Gateway to communicate with Frio S1 controllers. To configure the gateway, you will also need project specific information provided on the forms included at the end of this document. For questions, please contact support at info@frio.co

SMC GATEWAY SETUP USING WEB INTERFACE

Please The SMC Startup Guide is available at: https://msa.webdamdb.com/bp/#/folder/9069681/118191016

NOTE: MSA acquired SMC and is slowly changing over the branding of SMC devices.

1. CONNECT PC TO THE SMC GATEWAY

The default IP Address for the SMC EZ Gateway is 192.168.2.101, Subnet Mask is 255.255.255.0. If the PC and SMC Gateway are on different IP networks, assign a static IP Address to the PC on the 192.168.1.xxx network. Once the PC network settings have been configured to match the default Gateway subnet, move on to the next step.

2. OPEN YOUR BROWSER TO CONNECT TO THE SMC GATEWAY

Using a browser go to http://192.168.2.101/login/ and you should see an SMC login page. The first time the Gateway GUI is opened in a browser, the IP Address for the gateway will appear as untrusted. This will cause the pop-up window shown below to appear. When the Web Server Security Unconfigured window appears, read the text and choose whether to move forward with HTTPS or HTTP.

 Image: Continue with HTTPs

 Web Server Security Unconfigured

 Web server security has not yet been configured for the gateway. You have the option to continue with HTTP, which is not secure, or rather to use HTTPS.

 When using HTTPS without an internet connection your browser will issue a security warning.

 When using HTTPS with an internet connection your browser will redirect you to a trusted domain ie. https://192-168-1-24.gw.fieldpop.io for IP address 192.168.1.24.

 Use HTTPS (Recommended)
 Continue with HTTP

NOTE: Section 6.2 in SMC Gateway Start-up Guide describes HTTPS security options and how to update them.



3. PROCEED WITH THE CONNECTION

When the warning that "Your connection is not private" appears, click the advanced button on the bottom left corner of the screen. Additional text will expand below the warning, click the underlined text to go to the IP Address. In the example below this text is "Proceed to 192.168.2.101 (unsafe)".

Your connection is not private	
Attackers might be trying to steal your information from 192.168.2.101 (for passwords, messages, or credit cards). <u>Learn more</u>	or example,
NET::ERR_CERT_COMMON_NAME_INVALID	
Q To get Chrome's highest level of security, <u>turn on enhanced protect</u>	tion
Hide advanced	Back to safety
This server could not prove that it is 192.168.2.101 ; its security certificate *.gw.fieldpop.io . This may be caused by a misconfiguration or an attacker your connection.	is from r intercepting
Proceed to 192.168.2.101 (unsafe)	

4. LOGIN AS ADMIN

When the login screen appears, put in the Username (default is "admin") and the Password (found on the label of the Gateway).

Username = admin

Password = The Default password is located in the SMC Gateway label. An example is shown on the following page.

	Log In
admin	
•••••	
	Log In
	Forgot Password?

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fieldserver	The Sofety Company
REF (FS-EZ3-MOD-BAC SN 21067	00060VZL
Input: 24VAC 50/60Hz or 9-30VDC 0.3A	
Default Password:	·· ·
Shipped IP: 192.168.2.101 c(UL)us	(FA
SO#: 402297811 SH LISTED	
ETH MAC:	TI FO
BIOS: 4.8.0 *00504E606936*	FC
Country of Origin: USA	

EXAMPLE GATEWAY LABLE

5. SELECT GATEWAY SECURITY MODE

On the first login to the Gateway, the following screen will appear that allows the user to select which mode the Gateway should use. To understand all the security options please read Section 6.2 of SMC Gateway Start-up Guide

A	Web server security is not configured Please select the web security profile from the options below. Note that browsers will issue a security warning when browsing to a HTTPS server with an untrusted self-signed certificate.
Mode HTTPS wit HTTPS wit HTTP (not	th default trusted TLS certificate (requires internet connection to be trusted) th own trusted TLS certificate secure, vulnerable to man-in-the-middle attacks)

NOTE: Cookies are used for authentication.

NOTE: To change the web server security mode after initial setup, go to Section 11.1 of SMC Gateway Start-up Guide "Change Web Server Security Settings After Initial Setup".



6. OPEN SMC LANDING PAGE

SMG

Once step #5 is complete, the SMC Gateway landing page will appear.

FieldServer EZ Gateway Modbus to BACnet

¢ Configuration ~	\equiv	General	Controls
Gateway		General	controis
Connections		Title Modbus to BACnet EZ Gateway	Reload Defaults
DeviceProxy™			Save
Device Profiles			
A Bacnet Explorer			
✤ Settings >			Status
▲ SMC Cloud [™]			Gateway is online
About			
🗭 Logout			

7. CONFIGURE "CONNECTIONS"

Go to "Connections" and fill the form based on the information provided from the client as shown in the next image.

- For all devices select Modbus RTU R1 Enable and confirm settings match the image below.
- For BACnet IP devices, select BACnet IP Enable
- For BACnet MS/TP select **BACnet MSTP R2 Enable** and enter the configuration information provided by the client.

Press "Save" and "Restart".

SMC			FieldServer EZ Gate	way Modbus to BACnet
aç Configuration ✓ Gateway Connections Device Protiles A. Bacnet Explorer ✓ Settings → SMC Cloud™ O About	Modbus RTU R1	BACnet IP Enable IP Port Public IP Address Content IP Port Enable BBMD BACnet IP Settings	BACnet MSTP R1	Controls Reload Defaults Save Restart Status Gateway is online There are unsaved settings. There are unsaved settings.
9+ Logout	Enable Baud Rate Bood Rate	Vifual Network Number 1100 Internal Network Number 21201 Internal Network Number 21201 BACnet MSTP Settings Vifual Network Number 11202 Internal Network Number 21203	AAC Address 1 BACChet MSTP R2 Enable Baud Rate 115200 Party None Data Bts 8 V Mode Master Max Master 127 Max Info Frames 1 MAC Address 2	



8. IMPORT S1 DEVICE PROFILES

Go to "Device Profiles" press "Import->Choose File" and select the provided Frio S1 configuration file "S1-vx.x.x.profile" and press the "Import" button. The S1 Profile file will be provided by Frio upon request.

Press "Save" and "Restart".

SMG		FieldSen	ver EZ Gateway Modbus to BACnet
of Configuration	ice Profiles		Controls
Gateway	ice Fromes		Controis
Connections Profil	e Name		Reload Defaults
DeviceProxy ⁷⁴ New_	_Profile		
Device Profiles			Save Restart
Ad Bacnet Explorer	d Import		
⊁ Settings >	t Province 1 Next Last		Status
SMC Cloud**	I PIETIOUS I IVEAL LISS		Gateway is online
O About Down!	load Excel Profile Generator		
(+ Logout			

At this point you should see that a profile called "S1" has been added

9. ADD NEW DEVICE

Go to "DeviceProxy" and add a new "Device" as shown in the next image. The required information should be supplied by the client on the Frio SMC Gateway Configuration Form at the end of this document.

Sincesierra									FieldSei	ver EZ G	iateway	/ Modbus to E	BACnet
✿ Configuration ∨	=	DeviceDro	XXXTM									Controls	
Gateway		Devicerit	лху									Controls	
Connections		Device Profile	Modbus Connection	BACnet Connection	Modbus Node ID	Modbus Node IP Address	Modbus Node IP Port	BACnet Device Instance	BACnet Device Name	Advanced		Reload	Defaults
DeviceProxy™		1 \$1	✓ R1 (Modbus R [*] ✓	R2 (BACnet M: 🗸	1		502	0	MUW-21470009	۲	â	Save	Restart
Device Profiles		2 \$1	♥ R1 (Modbus R' ♥	R2 (BACnet M: 🗸	2		502	1	MET-21470016	۲	1		
🛔 Bacnet Explorer		3 S1	✓ R1 (Modbus R [*] ✓	R2 (BACnet M: 🗸	3		502	2	CWS & EQ EAST	۲	Ê		
✗ Settings >		4 S1	✓ R1 (Modbus R' ✓	R2 (BACnet M: 🗸	4		502	3	CWR/S-21470001	۲	1	Status	
SMC Cloud™		Add										Gateway is online	
About													
🕩 Logout		First Previou	s 1 Next Last										

- "Modbus Node ID" is the Modbus RTU address of the Frio S1 Heat Controller, in this example the address = 10
- "BACnet Connection" is the transport medium (BACnet IP or BACnet MSTP) that you want each S1 controller to be associated with.
- "BACnet Device Instance" is a number that identifies a device uniquely on the entire interconnected BACnet network. No other device anywhere on a BACnet IP network may have the same BACnet instance number. For BACnet MSTP, each device on a gateway requires a unique number.
- "BACnet Device Name" is a custom name to identify this Frio S1 Controller in this example = "S1-Heat Control"



Repeat Step 9 to add additional Frio S1 controllers. Press "Save" and "Restart" when you are done.

NOTE: Pressing the "Advanced" button will allow to enter "Device Description" and "Device Location".

10. CONFIGURE IP NETWORK SETTINGS (FOR BACNET IP ONLY)

Go to "Settings->Network" and change the IP network settings according to the information provided by the client.

After changing the network settings press "Save" and "Restart".

NOTE: You may lose network connectivity if you are in a different subnet that the subnet entered in the setting.

SMC FieldServer EZ Gateway Modbus to BACnet Configuration \equiv IP Settings Gateway N1 DHCP Client State Connections 192,168,2,101 N1 IP Address DeviceProxv™ 255.255.255.0 N1 Netmask Device Profiles 192.168.2.1 Default Gateway A Bacnet Explore 8.8.8.8 Domain Name Server 1 ✗ Settings Domain Name Server 2 8.8.4.4 Network Refresh SMC Cloud™ About Example 1



Connecting and Testing the Frio S1 and the SMC Gateway

1. WIRE THE FRIO S1 AND SMC GATEWAY

Turn off power to both the Frio S1 and the SMC Gateway and wire the devices as shown below:



NOTE: Up to 32 Frio S1 Controllers may be connected to each gateway.

2. CONNECT TO THE LOCAL AREA NETWORK (TO TEST BACNET IP)

Connect the SMC Gateway to the LAN using a ethernet RJ45 cable. Power on both devices and using a browser go to "<ip address set>". You should be presented with the login page for the SMC gateway. Enter the username and password (see step #4) and you should be able to login and verify settings entered in the previous steps.

3. CONNECT GATEWAY TO COMPUTER USING RS485 (TO TEST BACNET MSTP)

Connect the SMC Gateway to your computer using a USB to RS485 adapter.



4. CONFIGURE THE FRIO S1 CONTROLLERS

Using the Frio S1 HMI Menu go to Settings->Advanced Settings->Modbus and set the Modbus parameters as shown in in the BACnet Configuration form for your project. Available Modbus parameters are shown in the table below.

Variable	Description	Default	Range/Options
Enable	Enable or disable the serial port	OFF	Bool
Address	Modbus Station Address used to identify the unit.	1	1 to 247
Baud Rate	Baud Rate - the rate at which communications occur on the network	38400	9600, 19200, 38400, 57600
Parity	Defines the type of parity bit to be used with any of the three serial communications ports.	None	None, Odd, Even
Stop Bits	Defines the number of stop bits used with the serial communications port.	1	1, 2

NOTE: The "Address" value should match the "Modbus Node ID" entered in Step #9.

NOTE: "Enable" must be set to "ON" in order for the S1 to communicate with the SMC Gateway.

At this point a BACnet BMS software application should be able to discover the SMC gateway as a BACnet device and read the BACnet fields/properties.



5. TEST THE BACNET CONFIGURATION

Using a BMS application capable of BACnet communication, test the SMC Gateway and Frio S1 devices. The following image shows a test using the BACnet Quick Test application with a SMC Gateway connected to a Frio S1 Heat Trace Controller. For questions on testing please contact Frio at info@frio.co.

🔍 BACnet Quick Test v7.11			_	
Bor BACnet Quick Test			Po	lar.Soft
File 🎲 Settings 🐟 Port 💥 Tools	Frio - Brooklyn NY		0	Help
BACnetQuickTest Groups Groups BACnet/IP Fino S1 - ID 10 objects New_J/Dotfication Voltage RTD Temperature C Thermistor Temperature F Cntroller Mode State Substate Network Connection Alarm Heater Relay State Force On/Off	object-name object-type present-value description status-flags event-state reliability out-of-service units cov-increment event-detection-enable	Thermistor Temperature F analog-input 67.54145 Thermistor Temperature F {} normal no-fault-detected false degrees-fahrenheit 0 true	000000000000000000000000000000000000000	
search words				
1 devices				
©2020, PolarSoft®, Inc., All Rights Reserved	discovery	completed using CBQ v1.52 BQT is up-to-date		.: