

Sierra Monitor OEM Development Program Results in a Comprehensive Communication Solution

Sierra Monitor (SMC) sells preprogrammed/tested protocol gateways to OEMs which support all of their Building and Industrial Automation needs. Our approach ensures that when an OEM sends a SMC Gateway solution to the field with their product, it will work out of the box every time because all configurations have all been pre-tested/validated for all of their products. Additionally, installation takes minutes and not hours or days.

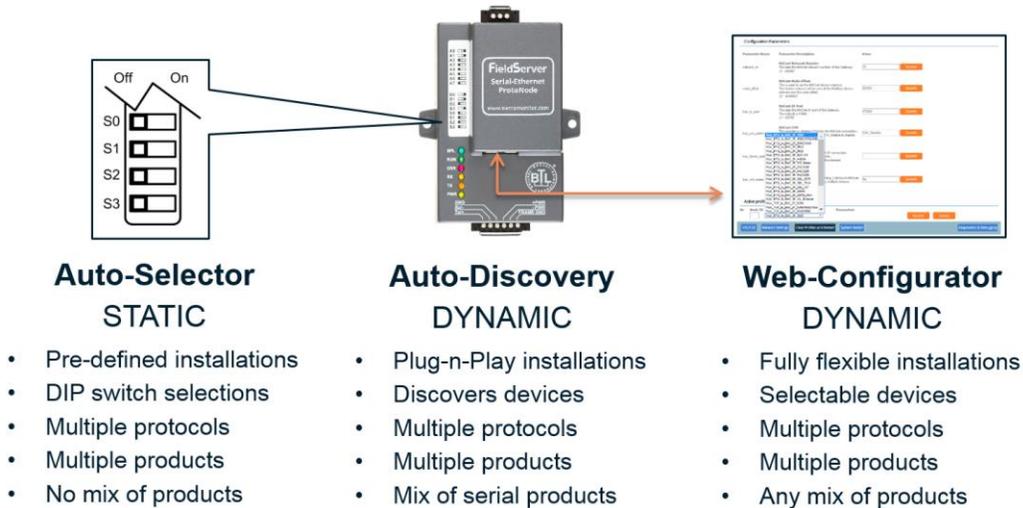
The SMC FieldServer product line has advanced functionality that makes it easy for manufacturers to configure, install, and support their products in the field. SMC makes it easy to add interoperability to all of the OEM's product lines to meet the demands of their customers. One part number can provide a solution that will support one or multiple of the same or different controllers to different field protocols. This advanced functionality means that the OEM does not need to build or load any configuration files to meet the need of their different product lines installed in the field.



SMC's OEM Testing Process

- The OEM provides the register list for all of the controllers that they want to have BMS protocol support.
- SMC programs the OEM's different controllers for the requested protocols.
- SMC creates a specific part number for the OEM which corresponds to all the configurations developed for the OEM.
- When the OEM receives the first test sample, they will receive all the configurations/profiles that SMC developed for each of their different product lines.
- SMC schedules a 60 minute phone meeting to walk the OEM through the one-time startup/validation of the FieldServer device (ProtoCessor, ProtoCarrier, ProtoNode or ProtoAir). The configurations must be validated before the FieldServer can be sent out to the field.
- SMC provides a BACnet Explorer testing tool that allows the OEM to validate that their products are working properly. This tool allows the OEM to test their product on BACnet with a PC in their facility.
- SMC creates a customized installation manual that the OEM can provide to their customers, explaining how to install their products on the supported protocols. The OEM can use the manual as is or incorporate it into their own style.
- Once the validation is complete, SMC then takes the validated configurations/profiles for each of the OEM's controllers, finalizes and freezes the programming for the gateway production configuration.
- Before the first production shipment, SMC provides a customized support training webinar for the OEM's support team. The webinar training focuses on how to install the OEM products for various protocols, quickly diagnose problems and how to escalate a problem to SMC.

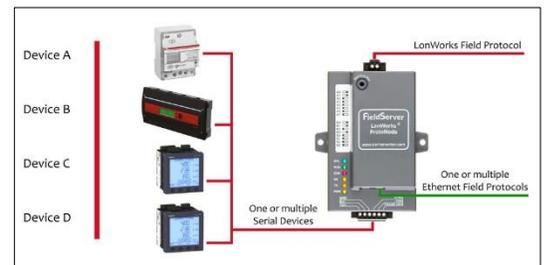
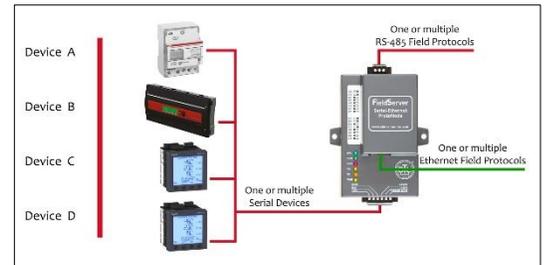
SMC offers three approaches to a configured OEM Gateway. The best approach will depend on the OEM's requirements (multiple families of controllers and multiple protocols).



Auto-Selector: ([Auto-Selector Application Note](#))

The Auto-Selector approach means that all pretested configurations are already loaded onto the gateway and are selectable via DIP switches. Different combinations of configurations are developed and loaded onto the SMC FieldServer. Set up possibilities include:

1. A common device protocol interfacing to multiple protocols – for instance a single device with Modbus RTU communication can have access to various protocols such as BACnet MS/TP, BACnet/IP, Metasys N2 for JCI, Modbus TCP/IP or LonWorks.
2. Multiple devices interface to a common protocol – the manufacturer has multiple products that need to communicate to BACnet/IP, thus the Gateway has preloaded multiple configurations from Devices A, B, C or D to BACnet/IP. DIP switches select the correct configuration.
3. Multiple of the same types of devices interface to multiple protocols – a situation where the manufacturer has multiple of the same devices and they need to interface to a variety of protocols. Again, DIP switches select the correct device and protocol combination and load it.

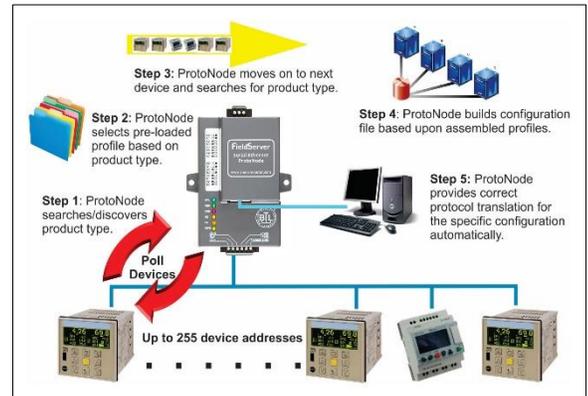


Advanced Auto-Discovery: ([Advanced Auto-Discovery Application Note](#))

The Advanced Auto-Discovery approach is for applications that require 1 or multiple of the same or different devices connected to one FieldServer, which needs to support multiple field protocols without having to build any special configurations. The configuration files are built automatically in the field.

The Advance Auto-Discovery function will search and discover any recognizable profiles that are stored inside the FieldServer. SMC FieldServers can store up to 1,000 device profiles. Each profile needs to have a unique register to identify the device or Modbus 17 (Slave ID request) can be used to discover any known profiles if the device supports Modbus function 17.

1. Profiles are preloaded onto the FieldServer for each OEM product to be discovered.
2. On power-up, the FieldServer polls device addresses from 1 to 255. Each profile will take a turn reading its unique register to see if it can be identified. If a profile recognizes a device, the FieldServer loads that profile in memory and moves to the next device address.
3. Polling continues until the point limitation has been reached (dependent on model selected) or if all device addresses have been polled (up to 255). Once all devices are discovered, the FieldServer automatically builds and loads the configuration file.
4. Once the polling cycle is complete, the FieldServer builds the configuration file for all the devices discovered and automatically loads the file. Setting the S3 DIP switch to the 'off' position saves the configuration that was built and the product is installed for the desired field protocol.



Web Configurator – Profile Selection

For Modbus RTU devices that do not have a unique identifying register or devices that support an Ethernet protocol, the FieldServer can be set-up using the Web Configurator to select specific device profile(s) stored on the FieldServer. This solution can support one or multiple of the same or different serial/Ethernet controllers connected to the FieldServer, with support for all the required field protocols. Via the web you can also add device profiles to the “available profile” list.

1. Enter the FieldServer specific IP Address into an Internet browser to open the configuration parameters.
2. Select “Add” and choose from the list of available device profiles; enter in the Node ID, and click Submit.
3. The configuration file is automatically generated from the profiles selected.

Parameter Name	Parameter Description	Value
mod_baud_rate	Modbus RTU Baud Rate This sets the Modbus RTU baud rate. (9600/19200/38400)	9600 <input type="button" value="Submit"/>
network_nr	BACnet Network Number This sets the BACnet network number of the Gateway. (1 - 65535)	50 <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 - 4294967295)	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_cnv_option	BACnet CNV Mod_RTI_to_BAC_IP_DC-4 Mod_RTI_to_BAC_IP_LMV3 Mod_RTI_to_BAC_IP_LMV5 Mod_RTI_to_BAC_IP_Min_367 Mod_RTI_to_BAC_IP_Nx0100_PPC6000 Mod_RTI_to_BAC_IP_FPC-4000 Mod_RTI_to_BAC_IP_579955 Mod_RTI_to_BAC_IP_57810M_57800A_57999D Mod_RTI_to_BAC_IP_564 Mod_RTI_to_BAC_IP_Sync-Misc Mod_RTI_to_BAC_IP_10C2500 Mod_RTI_to_BAC_IP_10C3200 Mod_RTI_to_BAC_IP_10C3500 Mod_RTI_to_BAC_IP_VB110	CNV_Disable <input type="button" value="Submit"/>
bac_biml_option	BACnet BIML Mod_RTI_to_BAC_IP_57810M_57800A_57999D Mod_RTI_to_BAC_IP_564 Mod_RTI_to_BAC_IP_Sync-Misc Mod_RTI_to_BAC_IP_10C2500 Mod_RTI_to_BAC_IP_10C3200 Mod_RTI_to_BAC_IP_10C3500 Mod_RTI_to_BAC_IP_VB110	loaded <input type="button" value="Submit"/>
Active profile		
Node ID	Node ID	<input type="text"/> <input type="button" value="Submit"/> <input type="button" value="Cancel"/>

To learn more about SMC's full product line of FieldServer embedded protocol modules that rapidly add BMS to OEM products without having to invest thousands of dollars in protocol development, visit the Sierra Monitor website at www.sierramonitor.com.

Some of SMC's products include:

- ✓ **ProtoCessor** – A family of embedded protocol coprocessor hardware modules that enable OEMs to convert the protocol interface on their device to match their customer's needs.



- ✓ **ProtoCarrier** – A daughter board that enables OEMs to incorporate the power of a ProtoCessor into their device without major hardware redesign.



- ✓ **ProtoAir** – An external, fully enclosed device that enables protocol conversion through Wi-Fi and cellular communication.



- ✓ **BACnet Router** – Easily support BACnet devices in the field for testing and routing purposes – Wi-Fi option available.



- ✓ **ProtoNode** – An external, fully enclosed device to quickly provide a protocol conversion solution.



- ✓ **SMC Cloud** – Connect your devices to the cloud with SMC Cloud, enabling secure remote monitoring, control, data logging/visualization and alarming for all of your products in the field.

