3. Connect the meter's RS-485 port to the Ethernet gateway.
4. Connect the Ethernet gateway to the LAN.
5. Start ION Setup in Network mode.
6. Add an Ethernet gateway site and set its properties:
   – IP address = IP address of the Ethernet gateway
   – Port = 502 (for Modbus RTU)
7. Add a meter to the site and set its properties:
   – Type = PowerLogic PM5000 series Power Meter
   – Unit ID = 1
8. Use the **RS-485 Base Comm** setup screen to modify the meter's serial communications settings.
9. Click **Send** to save your changes to the meter.

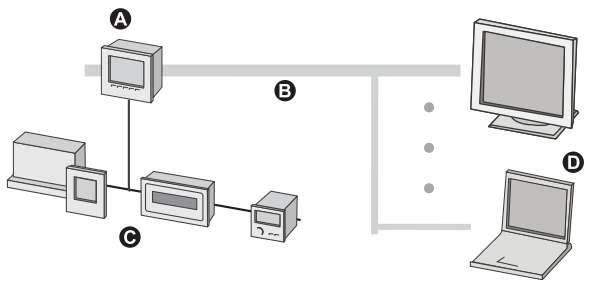
   NOTE: If you set the protocol to ASCII 7, ASCII 8 or JBus, you cannot use ION Setup to reconnect to the meter – ION Setup does not communicate using these protocols.

Parameter	Values	Description
Protocol	Modbus RTU, JBus, ASCII 8, ASCII 7	Select the communications format used to transmit data. The protocol must be the same for all devices in a communications loop. **NOTE:** ION Setup does not support ASCII 8, ASCII 7 or JBus protocols.
Address	1 to 247	Set the address for this device. The address must be unique for each device in a communications loop. This value is used in both Modbus TCP/IP and serial communications.
Baud Rate	9600, 19200, 38400	Select the speed for data transmission. The baud rate must be the same for all devices in a communications loop.
Parity	Even, Odd, None	Select None if the parity bit is not used. The parity setting must be the same for all devices in a communications loop.

Post-requisite: Reconfigure ION Setup to match the changed settings in order to re-establish communications with your meter.

Modbus Ethernet gateway

The meter's Ethernet gateway feature extends the meter's functionality by allowing Ethernet access to serial devices connected to the meter's RS-485 serial communications port.



A	Gateway meter
B	Ethernet (multiple Modbus master TCP connections)
C	Downstream serial Modbus slave devices
D	Multiple Modbus master devices

A Modbus master device (such as an energy management system) can communicate through the gateway meter to a serial network of devices connected to the gateway meter's serial port(s). The meter receives Modbus TCP/IP data on

TCP port 502, translates it to Modbus RTU then forwards it to the addressed slave device.

This functionality allows the use of monitoring software to access information from slave devices for data collection, trending, alarm/event management, analysis, and other functions.

Ethernet gateway implementation

The following outlines your meter's important considerations in your meter's Ethernet gateway implementation.

Firmware support

The Ethernet gateway functionality is available on firmware version 2.0.1 or later.

Addressing

In addition to Modbus slave addresses 1 - 247, you can use slave address 255 or the Unit ID configured in the gateway meter's serial settings to send a request to the gateway-enabled meter itself.

Broadcast messages

The gateway meter always processes broadcast messages (in other words, messages sent to Unit ID 0). You can configure whether or not broadcast messages are forwarded to the slave devices.

Modbus master TCP/IP connections

The maximum number of Modbus master TCP connections allowed for the Ethernet gateway is configurable. It is the same as the maximum number of total Modbus TCP/IP connections that are configured on the gateway-enabled meter.

Related Topics

- Setting up serial communications using the display

Ethernet gateway configuration

Configuring the meter as an Ethernet gateway using the webpages

The meter can function as an Ethernet gateway, allowing Ethernet access to serial devices connected to the meter's RS-485 serial communications port.

You must install the serial Modbus slave devices, configure them and connect them to your Ethernet-connected Modbus gateway meter. Ensure that each serial device is configured to communicate over Modbus with the same baud rate and parity as the gateway device, and that each device, including the gateway, has a unique unit ID.

The only configuration required for the meter to function as a gateway is to set the serial port's mode. You can configure other settings, depending on your requirements and network.

NOTE: The protocol of the serial port must be set to Modbus RTU or Jbus for the meter to function as a gateway.

1. Log in to the meter webpages using Product Master or Web Master credentials.
2. Navigate to **Settings > Serial Settings**.

3. Set **Mode** set to Gateway to enable the gateway feature or to Slave to disable it.
4. Set **Modbus Broadcast** to Enabled if you want broadcast messages to be forwarded to the connected slave devices.
5. Configure the other advanced parameters are required by your system.
6. Navigate to **Settings > Advanced Ethernet Settings** and change the **Modbus TCP/IP Server Connections** to adjust the maximum number of Modbus TCP connections allowed.

Modbus Ethernet gateway settings available using the webpages

Parameter	Value	Description
Response Timeout	0.1, 0.2, 0.3, 0.4, 0.5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10	Set the time the gateway meter waits for an answer from a downstream serial device before generating an exception response.
Delay Between Frames	0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100	The minimum time in milliseconds between the end of a received response and the beginning of a new request. Set this parameter to help improve communications between the gateway and downstream slave devices with slower response times.
Silent Interval Extension	0 – 15	Set this parameter to extend the silent interval (used to mark the end of a Modbus packet) beyond the default 3.5 characters defined in the Modbus standard. After the defined character time elapses without a new character, the gateway meter treats the next character as the start of a new message.

NOTE: These are advanced settings that you can adjust if you have communications errors when communicating through the gateway to the downstream serial devices. They only apply if the meter is functioning as a gateway, and you should only change these settings if you have an advanced knowledge of Modbus communications and your communications network.

Configuring the meter as an Ethernet gateway using ION Setup

The meter can function as an Ethernet gateway, allowing Ethernet access to serial devices connected to the meter's RS-485 serial communications port.

You must install the serial Modbus slave devices, configure them and connect them to your Ethernet-connected Modbus gateway meter. Ensure that each serial device is configured to communicate over Modbus with the same baud rate and parity as the gateway device, and that each device, including the gateway, has a unique unit ID.

The only configuration required for the meter to function as a gateway is to set the serial port's mode. You can configure other settings, depending on your requirements and network.

NOTE: The protocol of the serial port must be set to Modbus RTU or Jbus for the meter to function as a gateway.

1. Start ION Setup and connect to your meter.
2. Open the **Advanced Serial Settings** screen in the **RS-485 Comm Setup** folder.
3. Set **Mode** to Master Mode to enable the gateway feature or to Slave Mode to disable it.
4. Set **Modbus Broadcast** to Enabled if you want broadcast messages to be forwarded to the connected slave devices.
5. Configure the other advanced parameters are required by your system.
6. Click **Send** to save your changes to the meter.