

## MeterM@il<sup>®</sup> Internal Email Client Feature

The MeterM@il internal email client feature allows PowerLogic<sup>®</sup> ION<sup>™</sup> meters to automatically send high-priority alarm notifications or scheduled system status updates as email messages to anyone, anywhere within the facility or around the world. Messages sent via the MeterM@il feature are received like any email message sent over a workstation, cell phone, pager, or PDA.

Contact your Schneider Electric representative to determine whether your meter supports email alerts, data log export, or both.

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### Additional Information

- ◆ Your meter's technical documentation
- ◆ *ION Reference*

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# Introduction

This document addresses three audiences: the MeterM@il recipient, the network administrator, and the ION Enterprise software administrator.

## **MeterM@il Recipient**

The first section is geared to the user that receives MeterM@il and discusses how to view and interpret email sent by the meter. This section is titled:

- ◆ Viewing the MeterM@il Message

## **Network Administrator**

The second section is geared to the network administrator and discusses how to incorporate the meter into the corporate network so that a MeterM@il recipient can receive email from the meter. This section is titled:

- ◆ Setting Up the Network for the MeterM@il Feature

## **ION software Administrator**

The third section is geared to the ION software administrator who uses Designer to program the meter to send email alerts and/or data logs. This section is titled:

- ◆ Configuring the Meter for MeterM@il Technology

# Viewing the MeterM@il Message

You can configure the meter to send alert messages regarding specified events (e.g. power quality disturbances) via email or send periodic data logs (e.g. kWh del) via email.

## Send Alert Messages via Email

You can specify the type of event that triggers an alert message (email alert). These events are programmed on the meter by your ION software administrator.

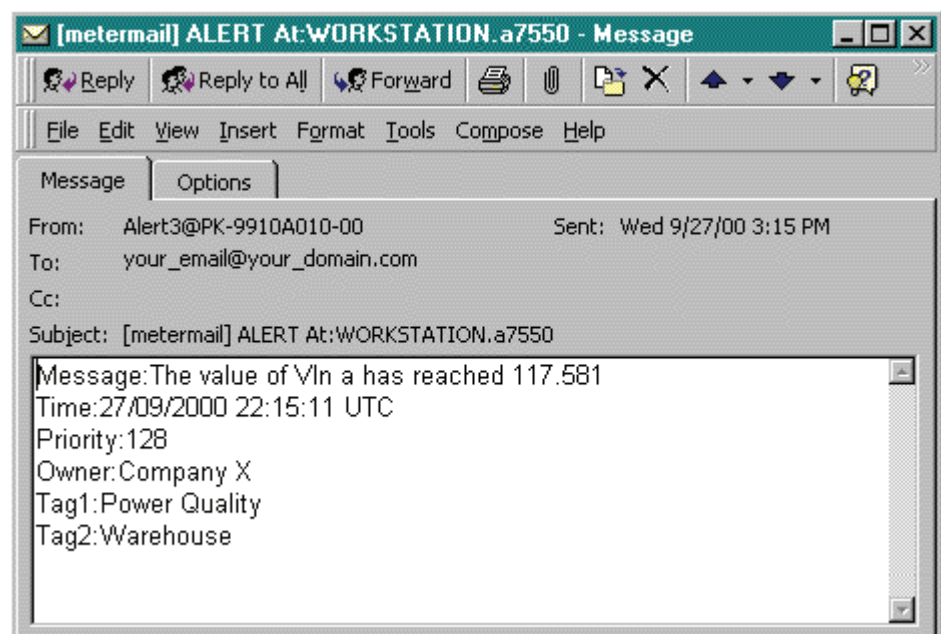
The email alert shows the following information in text format:

- ◆ the alert message details
- ◆ the event's date and time
- ◆ the event priority level
- ◆ the meter's owner
- ◆ additional user-defined meter identification information labelled "Tag1" and "Tag2"

### NOTE

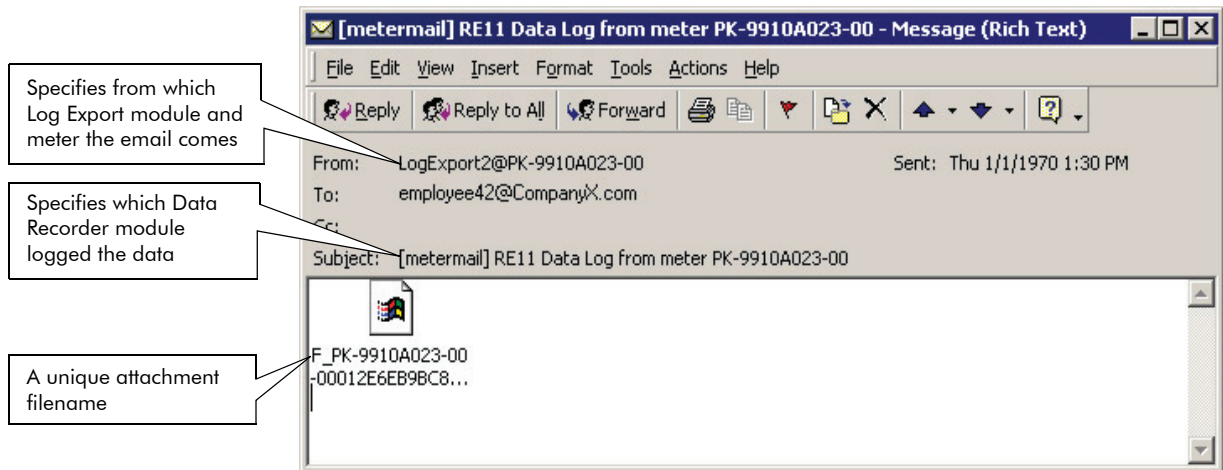
Tag1 and Tag2 are meter settings for information of your choice.

Here is an example of an email alert:



## Send Data Logs via Email

The meter can send logged data via email at any interval your ION software administrator configures. The logged data does not appear in the body of an email; the information is contained in an email attachment instead. The following illustration shows how an email sent by the Log Export module appears in your inbox:



You can gather some information from the email without opening the attachment. The From field displays which Log Export module and meter sent the email (the meter is identified by its serial number). The Subject field tells you which Data Recorder is responsible for logging the data. The attachment has a unique filename which incorporates the meter's serial number.

The email attachment is an eXtensible Markup Language (XML) document. Even though XML is a machine readable format meant to be processed by another program, you can still interpret the information contained within an attachment (see "The XML Attachment" on page 5). This information can be taken from the XML attachment:

- ◆ the name of the data log
- ◆ the device (meter) type
- ◆ the meter's serial number
- ◆ the meter's owner
- ◆ additional user-defined meter identification information labelled "Tag1" and "Tag2"
- ◆ the record number
- ◆ the UTC (Universal Coordinated Time) that the data was recorded
- ◆ the names of the logged data fields (e.g. Vln a, Vln b, Vln c)
- ◆ the numeric values of the logged data

## The XML Attachment

When you open the XML attachment in a browser, you see the following:

```

<?xml version="1.0" encoding="utf-8" ?>
<soap:Envelope
xmlns="http://rddl.xmlinside.net/PowerMeasurement/data/ion/historical/pushmessaging/1/"
xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Header />
  <soap:Body>
    <Data id="PK-9910A023-00-3D2358555AD26-6FA8"
      xmlns:ident="http://rddl.xmlinside.net/PowerMeasurement/data/ion/identity/1/">
      <ident:GeneratedBy ident:name="MainMeter" ident:namespace="Miami.CompanyX"
        ident:type="7550" ident:signature="PK-9910A023-00"
        ident:dateTime="2002-07-03T20:02:29.373Z" />
      <ident:Configuration ident:revision="B3352_7550"
        ident:template="7550_FAC-4WYE_V1.2.0.0.0" ident:owner="CompanyX"
        ident:tag1="Main" ident:tag2="Headquarters">
        <ident:Timezone>
          <ident:Bias>480</ident:Bias>
          <ident:DSTBias>-60</ident:DSTBias>
          <ident:DSTStart>1999-04-04T02:00:00.000-08:00</ident:DSTStart>
          <ident:DSTEnd>2018-10-28T02:00:00.000-08:00</ident:DSTEnd>
        </ident:Timezone>
        </ident:Configuration>
      <Device ident:name="MainMeter" ident:namespace="Miami.CompanyX"
        ident:signature="PK-9910A023-00" ident:type="7550">
        <ident:Configuration ident:revision="B3352_7550"
          ident:template="7550_FAC-4WYE_V1.2.0.0.0" ident:owner="CompanyX"
          ident:tag1="Main" ident:tag2="Headquarters">
          <ident:Timezone>
            <ident:Bias>480</ident:Bias>
            <ident:DSTBias>-60</ident:DSTBias>
            <ident:DSTStart>1999-04-04T02:00:00.000-08:00</ident:DSTStart>
            <ident:DSTEnd>2018-10-28T02:00:00.000-08:00</ident:DSTEnd>
          </ident:Timezone>
        </ident:Configuration>
      <Recorder id="Data Rec 39" label="RE39 Data Log">
        <Channels>
          <Channel id="c1" label="Vll avg" />
          <Channel id="c2" label="I avg" />
          <Channel id="c3" label="PF sign tot" />
        </Channels>
        <Records>
          <R pos="52400" ts="2002-07-03T20:02:20.000Z"
            c1="207.6390" c2="4.3291" c3="-92.1563" />
        </Records>
      </Recorder>
    </Device>
  </Data>
</soap:Body>
</soap:Envelope>
  
```

Links to the Resource Directory Description Language (RDDL) and XML Schema documents

Device which generated the email

The generating device's template, owner, Tag1, and Tag2 information

Meter information

The meter's template, owner, Tag1, and Tag2 information

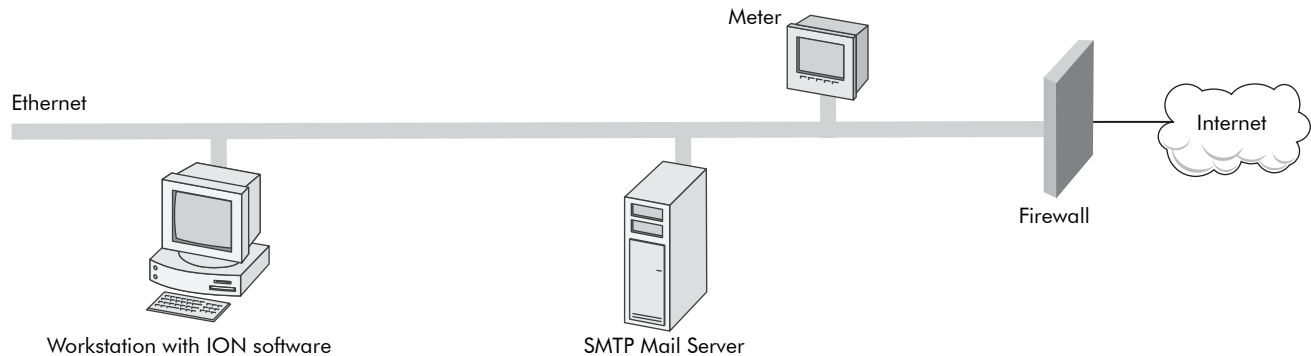
The Data Recorder module that logs the data

Logged data fields

The record number, timestamp, and logged data values (respectively)

# Setting Up the Network for the MeterM@il Feature

The information contained in this section is geared towards the network administrator who sets up the corporate network for meter email transmission. The required network components for using MeterM@il technology are described here.



The above illustration shows a network that is set up to take advantage of the MeterM@il feature on the meter. Both the meter and the SMTP mail server reside on the same Ethernet LAN. When the meter has an email to send, the connection between the meter and the SMTP mail server is quickly made over the LAN. The SMTP mail server forwards the MeterM@il message to its final destination.

To see an example of a network where MeterM@il technology accesses the SMTP mail server via a dial-up connection, see “SMTP Connection Timeout” on page 7.

The network components for using MeterM@il technology are as follows:

- ◆ **Ethernet network:** Ethernet is the connection medium for the delivery of email from a meter to an SMTP server.
- ◆ **Workstation with ION software:** You require a computer with ION software to configure a meter equipped with the MeterM@il feature. Refer to “Configuring the Meter for MeterM@il Technology” on page 8.
- ◆ **Meter:** You can connect the meter to your LAN like any other network device.
- ◆ **SMTP mail server:** The MeterM@il feature requires that you configure an SMTP mail server to forward email from the meter to the final destination of the email message. The SMTP server can be located on your Ethernet network or accessed via a dial-up modem connection.
- ◆ **Firewall:** If the SMTP server that the meter uses is beyond the corporate network, you must configure the firewall to allow outgoing connections on TCP/IP port 25 from the meter to the SMTP server. If the SMTP server is within the network, no additional configuration is required.

## SMTP Connection Timeout

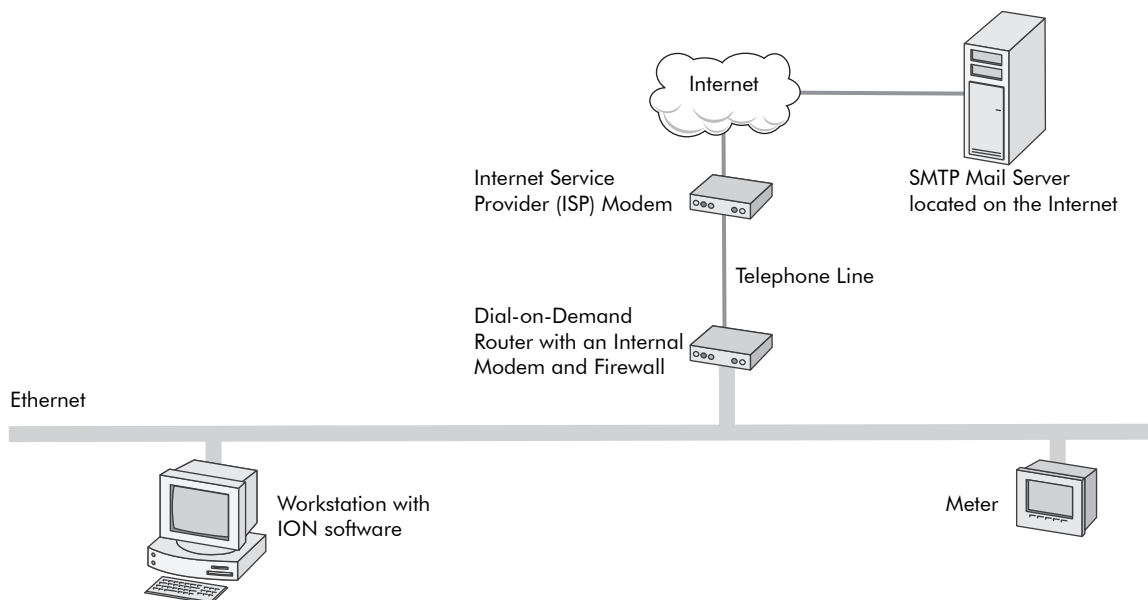
For meter email transmission, an SMTP mail server which is configured to forward email from that meter to the final destination is required. The SMTP mail server can be located on your Ethernet network (see previous section) or accessed via a dial-up modem connection (as illustrated below). If the SMTP mail server is located on your Ethernet network, the connection between the meter and the SMTP server is usually made quickly. If the SMTP mail server is accessed via a dial-up modem, then the connection can take longer and cause the meter to terminate the attempted connection to the SMTP server because the server takes too long to respond.

You can extend the SMTP Connection Timeout interval on your meter using the *SMTP Connection Timeout* setup register in the Ethernet Communications module:

- ◆ If the SMTP server is on your local network, you can most likely leave the *SMTP Connection Timeout* setting to its default of 60 seconds.
- ◆ If the SMTP server is accessed via a dial-up connection, the *SMTP Connection Timeout* should be extended to allow for extra time to establish a connection. The exact time setting depends on the speed of your dial-up process.

You can set the *SMTP Connection Timeout* register through the meter's front panel or with ION software. See "Setting Up the Meter for your SMTP Server" on page 8.

In the illustration below, the SMTP mail server does not reside on the same local network as the meter, so an SMTP mail server connection is not always made quickly. When the meter has an email to send, the following process occurs. First, the meter contacts the dial-on-demand router that contains an internal modem. Second, the router modem contacts the Internet Service Provider (ISP) modem to connect to the Internet and initiate a connection to the specified SMTP mail server. Connecting to the SMTP mail server can take longer than the *SMTP Connection Timeout* register default of 60 seconds. In such a case, the interval should be extended.



# Configuring the Meter for MeterM@il Technology

This section presents information geared to the ION software administrator who uses Designer software to create frameworks to program the meter to send email alerts and/or data logs. For assistance using Designer, refer to the ION Enterprise Help.

## Setting Up the Meter for your SMTP Server

Before you program the meter to send email alerts or data logs, you must configure the meter with your SMTP mail server address and, if required, extend the SMTP connection timeout.

The SMTP mail server settings are set manually with ION software or the meter's front panel.

To learn how to program SMTP mail server settings to the meter with:

- ◆ the meter's front panel, see your meter's Installation Guide
- ◆ Designer software, see the instructions below

### Setting up the meter for your SMTP server

1. Open the meter in Designer. Double-click the **Communications Setup** folder.
2. Right-click on the icon in the center of the Ethernet module. The ION Module Setup screen appears.
3. Double-click the **SMTP Server** setup register and type in the IP address or host name of your SMTP server.
4. If required, double-click the **SMTP Connection Timeout** setup register and increase the timeout period.



#### NOTE

The SMTP Connection Timeout sets the amount of time the meter waits when establishing a connection to an SMTP mail server. This setting is intended to compensate for situations where it takes some time to negotiate a connection, such as dial-up access. See "SMTP Connection Timeout" on page 7 for more information.

5. Click **Send & save**.

## Configuring the MeterM@il Feature to Send Alerts

You can configure the Alert module to send an email alert message to your workstation – this keeps you informed about certain alarm conditions so you can act on them.

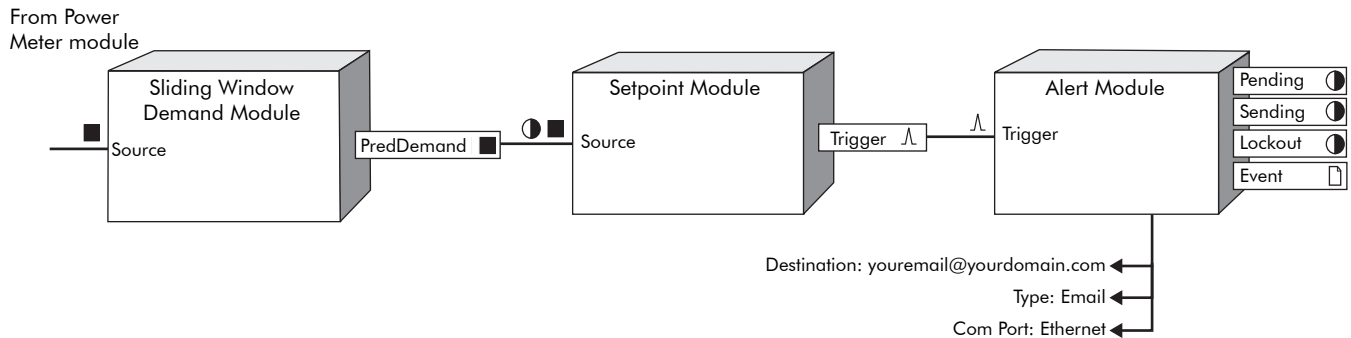


#### NOTE

The ION7330 meter cannot send email alert messages because it does not have an Alert module.



The Alert module sends an alert whenever its *Trigger* input is pulsed. You can connect this input to any module that produces a pulse output. You can use modules that monitor alarm conditions such as changes in relay status and power quality problems (surges, sags, swells, outages).



In the example framework above, a Sliding Window Demand module's output is monitored so that an alert is sent when the predicted demand value goes above a certain limit. A Setpoint module is required to determine when the high limit condition is met and to send a pulse to trigger the Alert module. When the pulse is received, the message is sent according to the Alert module's setup register values. The example above shows the setup registers that must be configured in the Alert module for email alerts (see step 4 below for additional setup register configuration).

#### NOTE

The SMTP Server address must be configured correctly before the MeterM@il feature can operate. In addition, you may need to extend the SMTP Connection Timeout period (e.g. if the SMTP mail server does not reside on the Ethernet network).

### Setting up the meter to send alerts

1. Open the meter in Designer.
2. Create an Alert module.
3. Create an ION module that produces a pulse on one of its output registers when the exceptional event occurs (in the example above, a Setpoint module pulses its *Trigger* output when the setpoint condition is reached).
4. Link the Alert module's *Trigger* input register to a pulse output register on the module created in step 2.
5. Configure the following Alert module setup registers as follows:
  - ◆ **Message** – This string register contains the text that will be displayed in the email alert. You can use up to 120 alphanumeric characters in your message string. Values and names from registers linked to the module's *Source* inputs can be included in the message by referencing them in the message string.
  - ◆ **Destination** – This string register identifies the alert's destination email address. You can use a maximum of 50 characters.
  - ◆ **Type** – This register specifies the destination type you want to alert; select "Email."

- ◆ **Com Port** – This register lets you specify the communications port that is used to send the email alert; select “Ethernet.”
  - ◆ **Location** – This string register identifies the meter that is sending the alert; it defaults to the network meter name. If you change the default, you can use up to a maximum of 60 characters.
  - ◆ **Email From** – This string register specifies the email address that will appear in the “From” field on the email. The default value of this register is ALERT<ALERT MODULE NUMBER> @ <METER SERIAL NUMBER> – for example, Alert3@PK-9910A010-00. You must alter this register in cases where the receiving SMTP server only accepts emails from valid Internet domains (i.e. SomeName.COM). This string can be up to 80 characters long.
6. Click **Send & save**. When the *Trigger* input is pulsed, the Alert module establishes communications with the SMTP mail server and emails the alert message.

## Configuring the MeterM@il Feature to Send Data Logs

The Log Export module can send data logs in different ways, but only email is currently implemented. This section discusses the ION modules involved in a “data push” framework, including the corresponding setup registers that you need to configure in order to utilize the MeterM@il feature in the framework. The term “data push” refers to the action of the Log Export module sending data logs. You can find a complete description of the Log Export module and the other ION modules involved in the framework in the *ION Reference*, available on the website.

The MeterM@il feature requires that you create an additional framework in Designer before you can configure your meter to use the Log Export feature. Each “data push” framework includes the following:

- ◆ A Data Recorder module that records the values in its *Source* inputs each time it is pulsed and stores these values in its *Data Log* output register.
- ◆ A Log Export module that retrieves information from the Data Recorder module’s *Data Log* register and sends the data to a specified destination.
- ◆ A module that sends values to the Data Recorder module (e.g. Power Meter module or a Modbus Import module).
- ◆ A Periodic Timer module that triggers the Data Recorder module to record the values that it is sent.
- ◆ A module that triggers the Log Export module to send the logged data (e.g., a Clock or Periodic Timer module). This module is optional because you can configure the Data Recorder module’s *Record Complete* output register to trigger the Log Export module to send data logs. When this is the case, the data logs are emailed at the same interval that the Data Recorder module records new data.

### Additional ION Module Configurations

In addition to the “data push” framework, you need to configure certain setup registers in the Factory module and the Ethernet (Communications) module. The Log Export module cannot go online if these registers are not configured.

*Device Namespace* (Factory module)

The value in this register is used as the namespace attribute in the Device element of XML messages generated by the Log Export module. The value range for this string value is up to 80 characters; these characters must be alphanumeric but can also include a dash (hyphen) or a dot (period). **If this register is not configured, the Log Export module cannot go online.**

 **NOTE**

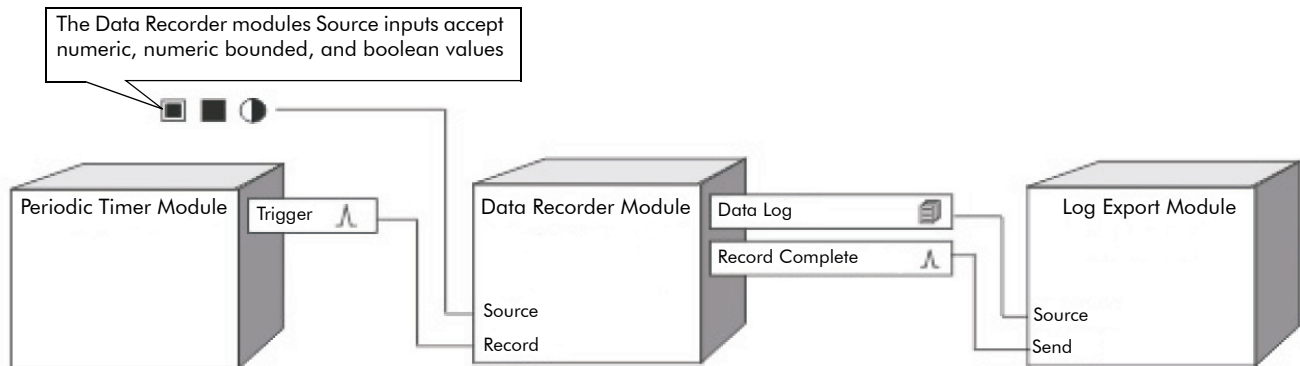
A namespace uniquely identifies a set of names so that there is no ambiguity when objects with different origins but the same names are mixed together. A namespace is commonly given the name of a Uniform Resource Identifier (URI) - such as a web site address - both because the namespace may be associated with the site or page of that URI (for example, a company name) and because a URI is likely to be a unique name.

*Device Name* (Factory module)

The value in this register is used as the name attribute in the Device element of XML messages generated by the Log Export module. The value range for this string is up to 80 characters; these characters must be alphanumeric but can include a dash (hyphen) or a dot (period). **If this register is not configured, the Log Export module cannot go online.**

*SMTP Server* (Ethernet module)

This setup register contains the IP Address or host name of the email server to which the meter sends outgoing email. **If this register is not configured correctly, the Log Export module fails to send any emails.**

**Configuring the meter to send data logs**

1. Open the meter in Designer.
2. Configure the Factory module's *Device Namespace* and *Device Name* setup registers with appropriate values.
3. Configure the Ethernet (Communications) module's *SMTP Server* setup register with the correct IP address or host name.
4. Link the Data Recorder module's *Source* inputs to the values you want to log. For example, you could use the Power Meter module's outputs VIn a, VIn b, and VIn c as the *Source* inputs.

5. Link the Data Recorder module's *Record* input to the Periodic Timer module's *Trigger* output. (Adjust the *Period* setup register in the Periodic Timer module.)
6. Link the Log Export module's *Source* input to the Data Recorder module's *Data Log* output.
7. Link the Log Export module's *Send* input to the Data Recorder module's *Record Complete* output.
8. Configure these Log Export module setup registers appropriately:
  - ◆ **Destination** – This is the destination's Uniform Resource Identifier (URI). Current support is limited to email URIs (e.g. mailto:john.doe@host.com). You must include **mailto:** as a prefix to the email address string in order to send records via email. The default value is "Enter Destination Address," which means you must specify a destination in order for the module to go online. The destination string can be between 0 and 80 characters.
  - ◆ **Maximum Send Records** – This register determines the maximum number of records that are emailed at once. The default value is set to 0, essentially disabling the module. This register must be changed to a non-zero value for the Log Export module to go online.
  - ◆ **Email From** - This register contains the address that appears in the From: field of the email sent by the Log Export module. This register only applies to messages sent via email. The default value depends on which Log Export module you are using and the meter's serial number. Email arriving from a meter have a default format similar to LogExport<module number>@<meter serial number>.

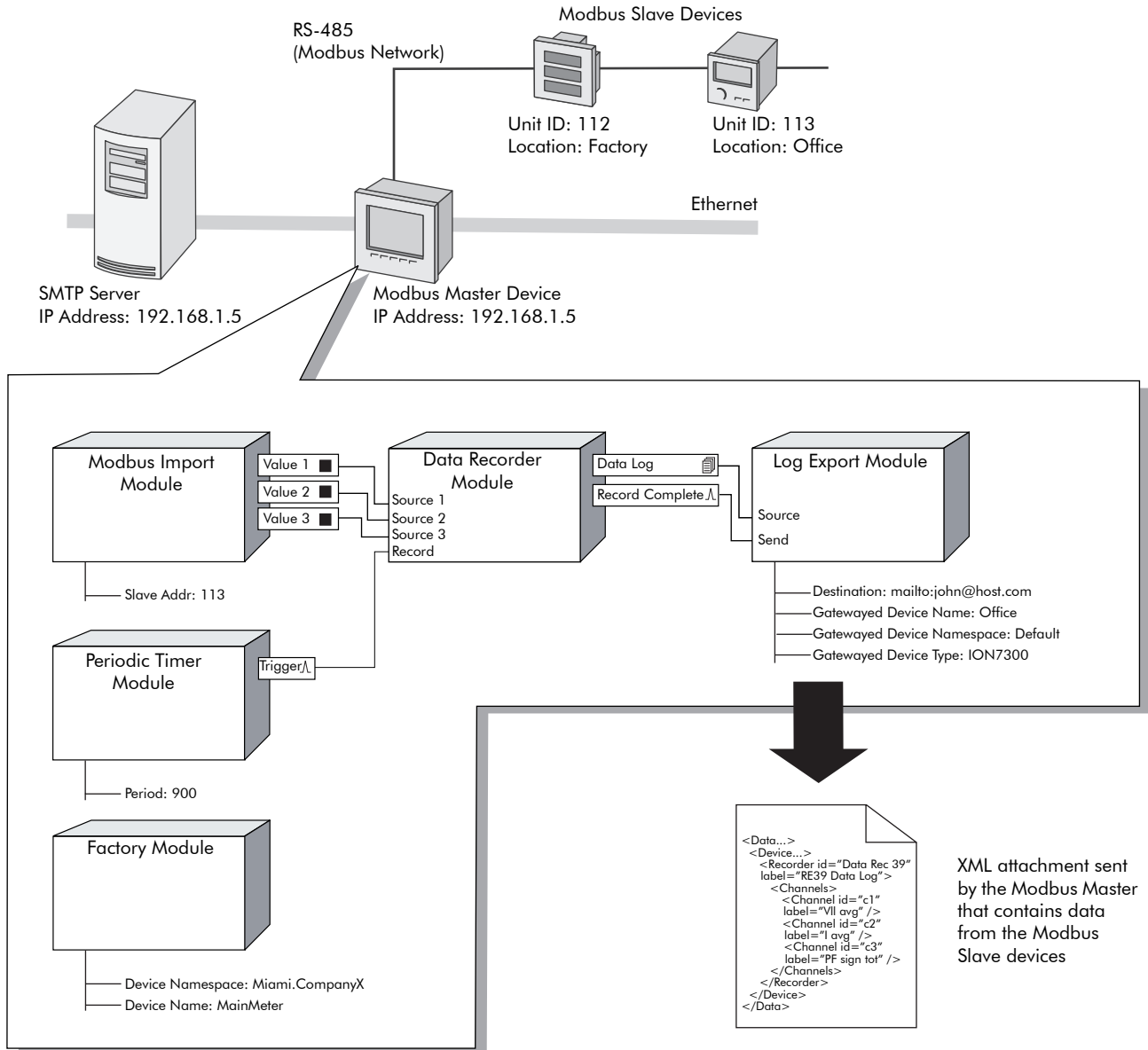
Configure the following Log Export module setup registers when using the MeterM@il feature in a gateway scenario. These registers differentiate the gatewayed device (which logs the data) from the gateway meter (which sends the data).

- ◆ **Gatewayed Device Namespace** - The string value in this register is used as the namespace attribute in the Device element of XML messages generated by the module. The default value is Default. When it is set to Default, the namespace attribute of the Device element inherits the value from the Factory module's Device Namespace setup register.
- ◆ **Gatewayed Device Name** - The string value in this register is used as the name attribute in the Device element of XML messages generated by the module. The default value is Default. When it is set to Default, the name attribute of the Device element inherits the value from the Factory module's Device Name setup register.
- ◆ **Gatewayed Device Type** - This value is used as the type attribute in the Device element of XML messages generated by the module. The default value is Default. When set to Default, the type attribute of the Device element inherits the value from the Factory module's *DeviceType* register.

Click **Send & save**. When the *Send* input is pulsed, the Log Export module establishes communications with the SMTP mail server and sends the data log via email.

# MeterM@il Technology in a Modbus Network

The following example illustrates one use for the Log Export module. This Modbus network includes the ION7550 as the Modbus Master and the ION6200 and ION7300 meters as Modbus slave devices. Configuration is performed on the framework where the Modbus Master is located for systems that utilize MeterM@il technology.



Notice that the Modbus Import module supplies values to the Data Recorder module's *Source* inputs. The Modbus Import module's *Slave Addr* (slave address) is set to 113, indicating that the values come from the ION7300. The Periodic Timer module's *Period* register is set to 900, so the Data Recorder module is pulsed every fifteen minutes (900 seconds). When it is pulsed the Data Recorder module records the values in its *Source 1-3* inputs.

Once the values are successfully recorded, the Data Recorder module's *Record Complete* output pulses the Log Export module's *Send* input. The Log Export module then sends all its *Source* data records that have not previously been sent to the email specified in the *Destination* setup register (john@host.com).

The *Gatewayed Device Name* register in the Log Export module is configured with a value other than Default. This identifies the data as belonging to the meter known as "Office," which in this case is the ION7300. If this register were to remain as Default, the data would appear to come from the ION7550, because the value for the *Gatewayed Device Name* would come from the Factory module's *Device Name* setup register.