IP Meter Supplement

This appendix provides details you will need when using Echelon's IP Meter. The IP Meter supports all of the features described in the *ANSI Electric Meter v3.1 User's Guide,* and also contains an internal Data Concentrator. You can connect the IP Meter to an Ethernet network and use this Data Concentrator to supervise NES electrical meters and other NES devices over CENELEC A-Band power line channels, and communicate with the NES System Software located in the utility's service center via an Ethernet connection.

To begin using the IP Meter's internal Data Concentrator, follow these steps:

1. Install the IP meter in its desired location as described in the *ANSI Electric Meter v3.1 User's Guide.* You should be aware that the IP Meter is approximately 2 inches taller than the v3.1 ANSI electric meter when performing the installation.

2. Before the IP Meter can operate correctly in your system, it must be configured with specific operating parameters. This configuration is called "provisioning" and is performed by writing programs with preset values directly to the meter optical port from a computer using the NES Provisioning Tool application. The parameters in the Provisioning Tool programs are set by administrative staff at the governing utility, and the programs can be distributed to technicians for meter provisioning operations. The meter provisioning may be performed by Echelon prior to shipment, at a service depot before transportation to the meter installation site, or at the installation site.

   Consult the *NES Provisioning Tool User's Guide* for instructions to follow when using the Provisioning Tool with the IP Meter. Make sure to select **????** as the product model when you begin provisioning to ensure that you create the proper program.

3. If you plan on connecting the IP Meter to an Ethernet network, you can do so using the provided cable. You should also assign the IP Meter an IP address. These tasks are described in the following section, *Using the Ethernet Cable.*

Note: *The IP Meter also contains an internal Wide Area Network (WAN) card you can use to connect to a TCP/IP-based WAN, and provide automatic communication with the utility central office. You can configure the WAN settings for the IP Meter when you provision it with the NES Provisioning Tool.*

4. You can now use the Data Concentrator to perform a wide variety of functions associated with device supervision, system management, communication, memory management, alarm reporting, and system diagnostics. Consult Chapter 3, *Operation,* of the *DC-1000/SL and DC-1000/SLE Data Concentrator User's Guide* for an overview of the functionality provided by Echelon's Data Concentrators.

Using the Ethernet Cable

An Ethernet cable approximately 2 meters in length extends from the IP Meter. Connect the 8P8C connector (commonly referred to as an RJ45 connector) on the end of the Ethernet cable to an available 10BASE-T/100BASE-TX Ethernet port. The

10BASE-T/100BASE-TX Ethernet interface in the IP Meter will auto-negotiate communication speed and duplex with the Ethernet port that it is plugged into.

The IP Meter is designed to be provisioned with the NES Provisioning Tool and then plugged into an Ethernet port without further configuration. This is because the IP Meter as configured at the factory will automatically obtain an IP address from a Dynamic Host Configuration Protocol (DHCP) server when it is connected, as long as it has been provisioned first.

If you connect the IP Meter to an Ethernet network and no DHCP server can be found, the IP Meter will choose an AutoIP address in the range of 169.254.x.x. The IP Meter will then continue to search for a DHCP server periodically until the search is successful and the DHCP server is able to assign an IP address to the Data Concentrator.

The only configuration options for the IP Meter's Ethernet interface are to set a static IP address, and to revert back to a dynamic IP address, as needed. Echelon strongly recommends using the IP Meter in a DHCP environment so that the time-consuming and error-prone manual configuration of static IP addresses can be avoided. The following section describes how to assign a static IP address to the IP Meter.

Assigning a Static IP Address

To assign the IP Meter a static IP address, follow these steps:

1. Download Lantronix's® DeviceInstaller™ utility from Lantronix's Web site at www.lantronix.com/device-networking/utilities-tools/device-installer.html, and install it on your PC.
2. Start the DeviceInstaller utility. If your PC has multiple network interfaces, check that the correct Ethernet network interface is shown in the left hand pane. If not, select the correct network interface by selecting **Options** from the **Tools** menu.
3. Connect the IP Meter and your PC to the same Ethernet network. It is easiest if the IP Meter and the PC obtain their IP addresses from the same DHCP server.
4. Power up or reset IP Meter. The IP Meter needs approximately 30 seconds to boot up and activate the Ethernet port. Therefore, wait approximately 30 seconds before proceeding to the next step.
5. Click **Search** on the main DeviceInstaller window to automatically discover the IP Meter. If a device named *Unknown* does not appear in the explorer pane on the left hand side of the DeviceInstaller utility, click **Search** again repeatedly. You must initiate the search approximately 30 to 60 seconds after the IP Meter has been powered up or reset.

Note: *DeviceInstaller's search will only succeed if the PC running DeviceInstaller is on the same Ethernet subnet as the IP Meter (meaning that there are no routers between the PC and the IP Meter). If they cannot be attached to the same Ethernet subnet, enter the IP Meter's IP address manually by selecting* ***Add Device*** *from the* ***Device*** *menu. Knowing the IP Meter's IP address may be difficult unless you are an IP networking specialist.*

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6. The IP Meter will be listed as *Unknown* in the device list on the main DeviceInstaller window. Expand the *Unknown* device, then expand the *Unknown (X8)* device under it. Select the *IP address* item below *Unknown (X*8).

7. Click **Assign IP**. This opens the Assign IP Address Wizard.
8. On the Assignment Method page, select **Assign a Specific IP Address** and then click **Next**. This opens the IP Settings window.
9. Enter an IP address that will be unique and valid on your network, the subnet mask, and the default gateway.
10. Click **Next**. This opens the Assignment window. Click **Assign**. When a status message indicating that the IP address has been successfully assigned to the IP Meter displays, click **Finish**.

Note: *The IP Meter has a 30 second window of time during which it accepts commands from the DeviceInstaller. This 30 second window occurs approximately 30 seconds after the IP Meter is powered up or reset. If any of the configuration steps fail, reset the IP Meter and try again. Work quickly to avoid missing the window of time.*

Assigning a Dynamic IP Address

The steps to assign a dynamic IP address to an IP Meter are the same as those required to assign it a static IP address, with the exception that starting in step 8 above, you should perform these steps:

1. Select **Obtain An IP Address Automatically** on the Assignment Method page and click **Next**.
2. The IP Discovery Settings page opens. Click **Next**, and then click **Assign**. When a status message indicating that the IP address has been successfully assigned to the IP Meter displays, click **Finish**.