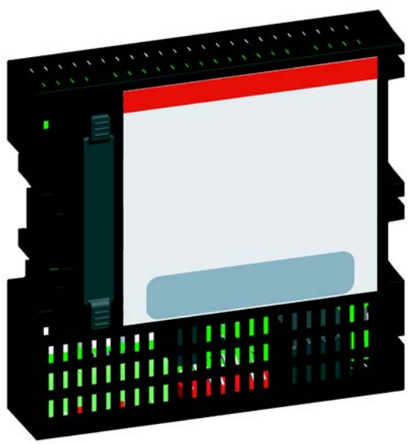
ACCESS 9340 and 9360 Meter Ethernet Communications Card

9340-60-ETHER

Installation Guide

PMIM-ETHCC-0208 **2/2008**



SAFETY PRECAUTIONS

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Failure to follow these instructions will result in death or serious injury.

- Only qualified workers should install this equipment. Such work should be performed only after reading this entire set of instructions.
- NEVER work alone.
- Before performing visual inspections, tests, or maintenance on this equipment, disconnect all sources of electric power. Assume that all circuits are live until they have been completely de-energized, tested, and tagged. Pay particular attention to the design of the power system. Consider all sources of power, including the possibility of backfeeding.
- Apply appropriate personal protective equipment (PPE) and follow safe electrical practices. For example, in the USA, see NFPA 70E.
- Turn off all power supplying the equipment in which the 9340-60-ETHER module is to be installed before installing and wiring the 9340-60-ETHER module.
- Always use a properly rated voltage sensing device to confirm that power is off.
- Beware of potential hazards, wear personal protective equipment, and carefully inspect the work area for tools and objects that may have been left inside the equipment.
- The successful operation of this equipment depends upon proper handling, installation, and operation. Neglecting fundamental installation requirements may lead to personal injury as well as damage to electrical equipment or other property.

INTRODUCTION

Box Contents

- 9340-60-ETHER module and connector
- Registration card
- Installation guide
- Technical Library CD-ROM
- Technical support contact sheet

Meter Firmware

Before installing the 9340-60-ETHER module, the ACCESS 9340 and 9360 must be running firmware version 10.6 or higher. To verify you have the correct firmware version, do the following:

1. From the meter display, press MAINT > DIAG > METER.
2. Verify that the number before OS, RESET, and DL is 10.600 or higher.

NOTE: To install the firmware upgrade you will need the Download Firmware Upgrade Utility (DLF3000), which is provided on the 9340-60-ETHER Technical Library CD-ROM. If you need assistance using DLF3000, refer to the Help file included with DLF3000.

Additional Resources

9340-60-ETHER Documentation: Go to www.sea.siemens.com/access, select “ACCESS 9340/9360 Power Meter” from “Compact Power and Energy Meter” and then click the manual you want to download.

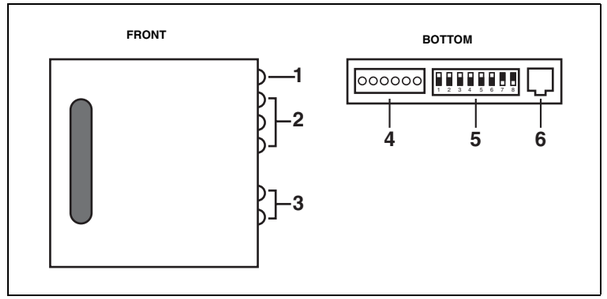
9340-60-ETHER Firmware: Go to www.sea.siemens.com/access, select “ACCESS 9340/9360 Power Meter” from “Compact Power and Energy Meter” and then click the firmware file you want to download. For more information, see the user's guide PMCM-ETHCC-0208.

Quick Start Checklist

- ❑ Using the meter display, verify the meter is running firmware version 10.600 (OS, RESET, and DL). Upgrade the firmware if necessary.
- ❑ Remove control power and any other power sources to the meter.
- ❑ Turn off all power supplying the equipment in which the 9340-60-ETHER module is to be installed.
- ❑ Attach the 9340-60-ETHER module to the meter.
- ❑ Wire the serial port and plug in the Ethernet cable.
- ❑ Return control power to the meter.
- ❑ Configure the Ethernet communications settings with a web browser (using an Ethernet crossover cable) or with the meter display.
- ❑ Configure the serial ports.
- ❑ Configure the device list.

DESCRIPTION

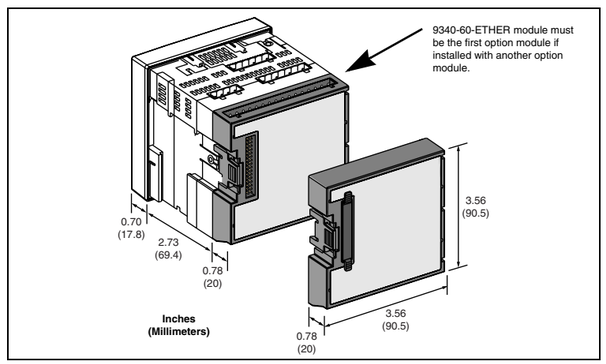
1. Power/Status: Green light = ON (flashes every 2 seconds to indicate the 9340-60-ETHER module is operating normally; see “Troubleshooting” on page 2 for other flash patterns)
2. Ethernet:
   - — LK: Active link (No light = No Ethernet communication, Yellow light = 10 Mb ON, Green light = 100 Mb ON
   - — TX: Transmitting data
   - — RX: Receiving data
3. Serial:
   - — TX: Transmitting data
   - — RX: Receiving data
4. RS485 connection
5. Dip switches
6. 10/100BaseTx connection



INSTALLATION

Dimensions

NOTE: Refer to your meter installation manual for minimum clearances and other guidelines for mounting the meter.



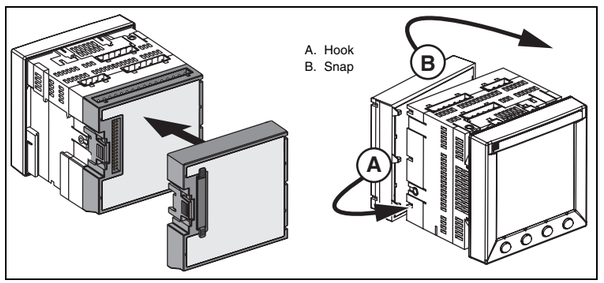
Hardware Considerations

The 9340-60-ETHER module can be installed on any ACCESS 9340 and 9360 that was manufactured after March 2005. The ACCESS 9340 and 9360 supports up to two (2) option modules.

When the 9340-60-IO2222 and 9340-60-ETHER modules are mounted together with control power voltage over 370 Vac, the temperature rating must be reduced to –25°C to 50°C.

Connect to the Meter

1. Turn off all power supplying the equipment in which the 9340-60-ETHER module is to be installed.
2. Hook the tabs on the 9340-60-ETHER module into the slots on the meter (see A in the image below).
3. Snap the 9340-60-ETHER module into place (see B in the image below).



Ethernet Configuration

Before configuring the 9340-60-ETHER module, obtain a unique static IP address, subnet mask, and default gateway address from your network administrator. Use a Web browser or the meter display to configure the 9340-60-ETHER module with the information obtained from your network administrator.

Ethernet Setup Using the Meter Display

NOTE: For instructions on using the ACCESS meter display, see the ACCESS 9340 and 9360 Installation Manual PMIM-9340D-0208.

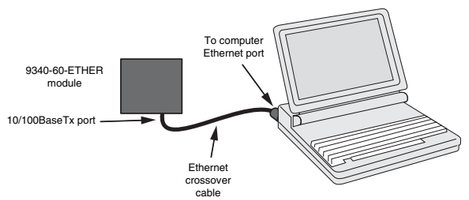
1. Press MAINT > SETUP, then enter your password (default = 0000).
2. Press COMMS > ETHER to open the IP Address screen.
3. Enter the IP address for the 9340-60-ETHER module, then press OK to go to the Subnet Mask screen.
4. Enter the subnet mask, then press OK to go to the Gateway screen.
5. Enter the gateway address, then press OK to go to the Media Type screen.
6. Select the media type, then press OK.
   NOTE: After pressing OK, the meter will verify that the IP address you entered is not in use. If it is in use, you will be prompted to select a different IP address.
7. Press ⇱ until you are asked to save your changes.
8. Press YES to save the changes.

Table 1: 9340-60-ETHER Ethernet and TCP/IP Settings

Option	Description	Setting
IP Address	Used to enter the static IP address of the 9340-60-ETHER module. *NOTE: If you enter an IP address that is already in use, you will be prompted to select a different IP address.*	**Default:** 169.254.0.10
Subnet Mask	Used to enter the Ethernet IP subnet mask address of your network.	**Default:** 255.255.0.0
Default Gateway	Used to enter the gateway (router) IP address used for wide area network (WAN) communications.	**Default:** 0.0.0.0
Media Type	Used to define the physical Ethernet connection.	• 10T/100Tx Auto • 10BaseT-HD • 10BaseT-FD • 100BaseTX-HD • 100BaseTX-FD **Default:** 10T/100Tx Auto

Ethernet Setup Using a Web Browser

1. Disconnect your computer from your network.
2. Connect an Ethernet crossover cable from the 9340-60-ETHER module to the computer.
   NOTE: After disconnecting from your network and connecting to your 9340-60-ETHER module, your computer should automatically use the default IP address 169.254.###.### (### = 0 to 255) and the default subnet mask 255.255.0.0. If the IP address is not automatically configured, contact your network administrator to set up a static IP address.



3. Start Internet Explorer (version 6.0 or higher).
4. In the **Address** text box, type *169.254.0.10*, then press Enter.
5. Type *Administrator* for your user name, type *Gateway* for your password, then click **OK**. User names and passwords are case sensitive.
6. Click **Setup**.
7. If the “Ethernet & TCP/IP” page isn't open, click **Ethernet & TCP/IP** in the menu on the left side of the page.
8. Select the frame format and media type (see Table 2 for a description of each option).
9. Enter your IP address, subnet mask, and default gateway address assigned to your 9340-60-ETHER module by your network administrator (see Table 2 for a description of each option), then click **Apply**.
10. Reconnect your computer to your network. If you assigned a static IP address to your computer in step 1, you must restore your computer's original settings before reconnecting to your network.

Table 2: 9340-60-ETHER Module Ethernet and TCP/IP Settings

Option	Description	Setting
Frame Format	Used to select the format for data sent over an Ethernet connection.	Ethernet II, 802.3 SNAP **Default:** Ethernet II
Media Type	Used to define the physical Ethernet connection.	• 10T/100Tx Auto • 10BaseT-HD • 10BaseT-FD • 100BaseTX-HD • 100BaseTX-FD **Default:** 10T/100Tx Auto
IP Address	Used to enter the static IP address of the 9340-60-ETHER module. *NOTE: If you enter an IP address that is already in use, you will be prompted to select a different IP address.*	**Default:** 169.254.0.10
Subnet Mask	Used to enter the Ethernet IP subnet mask address of your network.	**Default:** 255.255.0.0
Default Gateway	Used to enter the gateway (router) IP address used for wide area network (WAN) communications.	**Default:** 0.0.0.0

Serial Configuration

Serial Port Setup Using the Meter Display

NOTE: For instructions on using the meter display, see the ACCESS 9340 and 9360 Installation Manual PMIM-9340D-0208.

1. Press MAINT > SETUP, then enter your password (default = 0000).
2. Press COMMS > COM3.
   NOTE: The COM2 menu item is reserved for the 9340-60-DISPADA module. If you install the 9340-60-ETHER module with a 9340-60-DISPADA module, you cannot set up or use the serial port for the 9340-60-DISPADA module (COM2).
3. Select the physical interface, transmission mode, baud rate, and parity.
   NOTE: Attached serial devices must have the same baud rate and parity. Set the physical interface according to whether your daisy chain is 2-wire or 4-wire.

Parameter	Options	Default Setting
Physical Interface	2-wire, 4-wire	2-wire
Transmission Mode	Auto (Automatic), MB. A.7 (Modbus ASCII)	Auto
Baud Rate	2400, 4800, 9600, 19200, 38400	19200
Parity	None, Even, Odd	Even

4. Press ↑ until you are asked to save your changes.
5. Press YES to save the changes.
6. For daisy-chain devices on the 9340-60-ETHER module COM port, see the "Device List" section.

Serial Port Setup Using a Web Browser

1. Start Internet Explorer.
2. In the **Address** text box, type the IP address assigned to your 9340-60-ETHER module, then press Enter.
3. Type *Administrator* for your user name, type *Gateway* for your password, then click **OK**.
4. Click **Setup**, then click **Serial Port**.
5. Select the physical interface, transmission mode, baud rate, and parity for the serial 9340-60-ETHER module COM port.
   NOTE: Attached serial devices must have the same baud rate and parity. Set the physical interface according to whether your daisy chain is 2-wire or 4-wire.

Parameter	Options	Default Setting
Physical Interface	RS485 4-wire, RS485 2-wire	RS485 2-wire
Transmission Mode	Automatic, Modbus ASCII	Automatic
Baud Rate	2400, 4800, 9600, 19200, 38400	19200
Parity	None, Even, Odd	Even
Response Timeout	0.1 to 10 seconds	3

6. Click **Apply** to save changes.
7. For daisy-chain devices on the 9340-60-ETHER module COM port, see the "Device List" section.

Device List

For daisy-chain devices on the 9340-60-ETHER module COM port:

- Modbus devices do not have to be defined in the Device List, but it helps you manage your system.

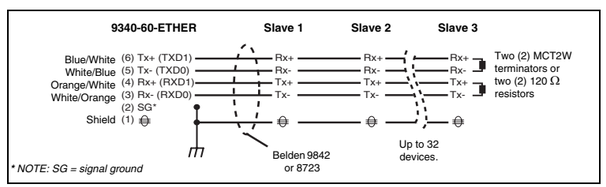
To set up the Device List for the 9340-60-ETHER module:

1. Click **Setup**, then click **Device List**.
2. Select the number of viewable devices (1 to 128). The default number of devices is eight (8).
3. Enter the **Local ID** and select the **Protocol** for each attached device on the daisy chain.
   NOTE: Do not use address 1 or 16 in a mixed mode daisy chain (for example, a single daisy chain with some devices using ACCESS protocol and others using Modbus/Jbus protocol).
4. Click **Apply**.

RS485 Wiring

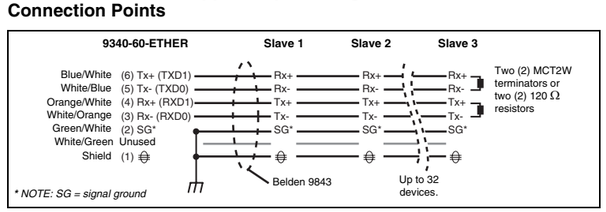
NOTE: For surge protection, we recommend connecting the 9340-60-ETHER signal ground directly to an external earth ground at a single point.

4-wire Devices That Do Not Support Separate Signal Ground and Shield Wire Connection Points

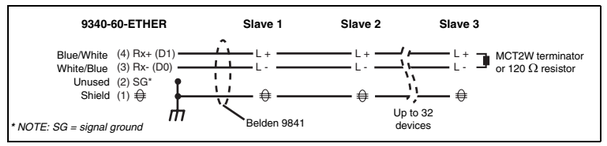


NOTE: The color code shown is for Belden 9842. The color code for Belden 8723 is Green (Tx+), White (Tx-), Red (Rx+), and Black (Rx-).

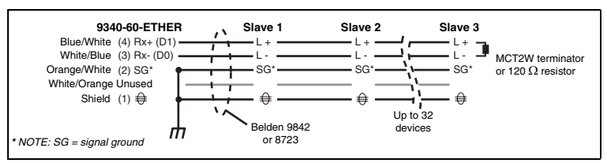
4-wire Devices That Support Separate Signal Ground and Shield Wire Connection Points



2-wire Devices That Do Not Support Separate Signal Ground and Shield Wire Connection Points



2-wire Devices That Support Separate Signal Ground and Shield Wire Connection Points



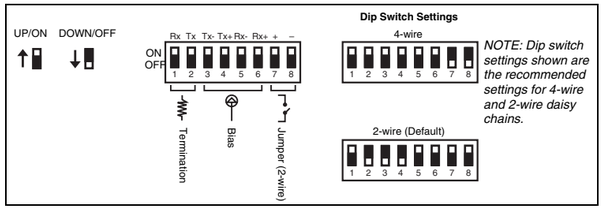
NOTE: The color code shown is for Belden 9842. The color code for Belden 8723 is Green (Rx+), White (Rx-), Red (signal ground), and Black (not used).

Daisy Chain Maximum Distances

Baud Rate	Max. distance for 1–16 devices	Max distance for 17–32 devices
1200	10,000 ft (3,048 m)	10,000 ft (3,048 m)
2400	10,000 ft (3,048 m)	5,000 ft (1,524 m)
4800	10,000 ft (3,048 m)	5,000 ft (1,524 m)
9600	10,000 ft (3,048 m)	4,000 ft (1,219 m)
19200	5,000 ft (1,524 m)	2,500 ft (762 m)
38400	5,000 ft (1,524 m)	1,500 ft (457 m)

NOTE: This table is to be used only as a guide for 2-wire or 4-wire configurations.

RS485 Biasing and Termination



SPECIFICATIONS

Environmental	
Ambient Operating Temperature	–25°C to +70°C. Refer to Hardware Considerations on page 1.
Storage Temperature	–40°C to +85°C
Relative Humidity Rating	5–95% (non-condensing) at +55°C
Pollution Degree	Class 2
Physical	
Weight	3.99 oz. / 113 g
Dimensions	Height (3.56 in. / 90.5 mm), Width (3.56 in. / 90.5 mm), Depth (0.78 in. / 20 mm)
Enclosure	IP30
Regulatory/Standards Compliance for Electromagnetic Interference	
Emissions (radiated and conducted)	EN 55011 / FCC Part 15, Class A
Immunity for Industrial Environments: Electrostatic Discharge Radiated RF Electrical Fast Transients Surge Conducted RF Power Frequency Magnetic Field Voltage Dips	EN 61000-6-2 EN 61000-4-2 Level 3 EN 61000-4-3 Level 3 EN 61000-4-4 Level 3 EN 61000-4-5 Level 3 EN 61000-4-6 Level 3 EN 61000-4-8 Level 3 EN 61000-4-11 Level 3

Regulatory / Standards Compliance for Safety	
USA	UL 508
Canada	cUL 508
Europe	EN 61010
Other Regulatory / Standards Compliance	
Europe	CE
Europe and China	RoHS
Transparent Ready	C15

MAINTENANCE AND TROUBLESHOOTING

Maintenance

The 9340-60-ETHER module does not require maintenance, nor does it contain any user-serviceable parts. If the 9340-60-ETHER module requires service, contact your local sales representative for help. Refer to the technical support contacts provided in the shipping carton for a list of support phone numbers by country. Do not open the 9340-60-ETHER module enclosure; this will void the product warranty agreement.

Diagnostics

The Diagnostics page served by the 9340-60-ETHER module, displays diagnostic data that may be helpful in troubleshooting network problems. This page also contains information about your specific 9340-60-ETHER module, including the serial number, manufacturing date, and media access control (MAC) address. Clicking the Reset button on this page clears all cumulative counters.

NOTE: This page will show accumulated readings since the 9340-60-ETHER module was last activated. If power to the 9340-60-ETHER module is lost, all values reset to zero.

Troubleshooting

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Failure to follow these instructions will result in death or serious injury.

- This equipment must be installed and serviced only by qualified personnel.
- Qualified persons performing diagnostics or troubleshooting that require electrical conductors to be energized must comply with and follow safe electrical work practices. For example, in the USA, see NFPA 70E.

Problem	Possible Cause	Solution
Power/Status LED is not lit.	Source power is not applied or is not stable.	Apply power or check power source.
	LED is burned out.	Check to see if other LEDs operate properly.
Ethernet link LED is not lit.	Proper link is not established.	Make sure the proper cable is used and connected.
		Make sure the proper media type is selected in the 9340-60-ETHER Communications setup configuration.
Power/Status LED repeats a four blink-pause pattern	IP address that the 9340-60-ETHER module was assigned is being used by another networked device.	Assign a new IP address to the 9340-60-ETHER module or to the conflicting device. *NOTE: When a duplicate IP address is detected, the 9340-60-ETHER module resets its specified IP address to the default IP address. When the 9340-60-ETHER module detects the conflict no longer exists, it will use the specified IP address.*
Cannot browse the 9340-60-ETHER module.	Incorrect network configuration.	Verify all IP parameters are correct.
		Verify 9340-60-ETHER module receives requests (ping 9340-60-ETHER module by going to DOS prompt and typing "ping" and the 9340-60-ETHER module IP address, e.g., **ping 169.254.0.10**).
		Verify all browser internet options connection settings are correct.
Forgot administrator password.		Call your local sales representative for assistance.

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This product must be installed, connected, and used in compliance with prevailing standards and/or installation regulations. As standards, specifications, and designs change from time to time, please ask for confirmation of the information given in this publication.