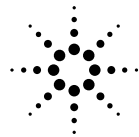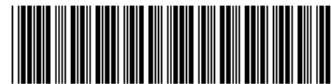**Agilent EPM-P Series Power Meters:**
E4416A and E4417A

Installation Note

Instructions for installing
the latest power meter firmware

Agilent Technologies

Agilent EPM-P Series Power Meters: E4416A and E4417A

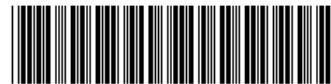|	
Product Affected:	Agilent EPM-P Series Power Meters: E4416A and E4417A.
Serial Numbers:	All
Options:	All
To Be Performed By:	(X) Agilent Service Center (X) Personnel Qualified by Agilent (X) Customer
Estimated Installation Time:	10 minutes via GPIB, 30 minutes via RS-232
Estimated Verification Time: . . .	1 minute

A. Introduction

Agilent EPM-P power meter firmware is upgraded by downloading new firmware files from disc via computer GPIB or RS-232 interface. This requires the upgraded firmware files and the *Agilent EPM and EPM-P Dload program* for Windows 95 and NT. Both are supplied with firmware upgrade kit E4416-61016 as shown below in Table 1. They can also be obtained from the internet—for further information refer to section B. "Obtaining The Firmware And Download Program From The Internet," on page 5

This installation note details how to perfom a firmware upgrade.

A.1 Firmware Upgrade Kit E4416-61016 Parts List

Table 1   **Parts List**

Item	Quantity	Description	Part Number
1	1	Set of 3 discs containing the firmware files and download program.	E4416-61015
2	1	Installation Note (this document).	E4416-90015

A.2 Tools Required

Table 2   **Tools Required for GPIB or RS-232 Connection**

Quantity	Description	Part Number
	None	

A.3 Hardware Required

Table 3   **Equipment Required for GPIB Connection**

Quantity	Description	Part Number
1	PC with a GPIB interface	
1	GPIB cable	10833B

Table 4   **Equipment Required for RS-232 Connection**

Quantity	Description	Part Number
1	PC with an RS-232 interface	
1	Serial RS-232 cable 9-pin (female) to 9-pin (female)	5182-4794

A.4 Software Required

- The PC must be running either Windows 95® or Windows NT® 4.0.
- The PC must have the VISA library installed. (Typically installed during the GPIB card driver installation)

B. Obtaining The Firmware And Download Program From The Internet

NOTE:	If you have purchased Firmware Upgrade Kit E4416-61035 ignore this section and go straight to C. "Installing The Download Program" on page 6.

Make sure that you have three blank formatted discs available before beginning the following steps.

1. Access the following URL:
    `http://www.agilent.com/find/powermeters`

2. Select the EPM-P Series Power Meter Firmware Upgrade link, under the Additional Information section.

3. Download the download program:
    - Place a blank formatted disc in drive A.
    - Select the Setupload.exe link at the right of the page.
    - When the download dialog box appears, select drive A.
      The file setupdload.exe is displayed in the File name window.
    - Click the **Save** button to start the file transfer.
      The Saving Location window opens showing the file transfer progress. When file transfer is complete the download dialog box closes.
    - Remove the floppy disc and label it appropriately.

4. Download the firmware:
    - Place a blank formatted disc in drive A.
    - For E4416A firmware, select the e4416_a1nnnn.exe link. For E4417A firmware, select the e4417_a2nnnn.exe link.

NOTE:	The value of nnnn changes with each firmware release.
	E4416A firmware must be used in E4416A single-channel power meters only. All E4416A firmware filenames begin with e4416_a1.
	E4417A firmware must be used in E4417A dual-channel power meters only. All E4417A firmware filenames begin with e4417_a2.

   - When the download dialog box appears, select drive A.
   - Click the **Save** button to start the file transfer.
     The Saving Location window appears, showing the file transfer progress. When file transfer is complete the download dialog box closes.
   - Remove the floppy disc and label it appropriately.

5. Decompress the downloaded firmware files:
    - Ensure that the firmware disc is in drive A.
    - From the Windows task bar select **Start**, **Run...** and click on the **Browse...** button.
    - Select the required firmware file. Click on **OK**.
    - When the WinZip Self-Extractor window opens, select **Unzip**.
    - Close the WinZip Self-Extractor window when complete.

C. Installing The Download Program

This procedure shows how to install the *Agilent EPM and EPM-P Dload program* for Windows 95 and NT on a PC running Windows 95® or Windows NT® 4.0.

1. Insert the download program disc into drive A.

2. From the Windows task bar select **Start**, **Run...** and enter `A:\setupdload.exe`

3. Click on **OK**.

4. To verify the installation, select **Start**, **Programs**, **Agilent EPM and EPM-P Dload** from the Windows task bar. Check that the program option **Agilent EPM and EPM-P Dload** is displayed as shown below:

D. Instrument Self Test

Use this procedure to check that the power meter's components are functioning correctly.

1. Connect the power cord to the power meter and press the power switch. The front panel display and the green power LED light up when the power meter is switched on. The instrument performs a power on Self Test. If the self test is not successful the ERR (error) annunciator turns on.

2. Perform a full Instrument Self Test by pressing $\boxed{\text{System}}$, $\boxed{\text{More}}$, **Service**, **Self Test**, **Instrument Self Test**. The power meter now carries out a full functional test.

3. If the ERR annunciator is turned on, review the error message queue by pressing $\boxed{\text{System}}$, **Error List** and use **Next** to scroll through the error messages.

E. Upgrading Firmware

This procedure shows how to download new firmware into the power meter using a PC running Windows 95® or Windows NT® 4.0.

1. Connect the computer to the power meter:
   - If using GPIB, connect the computer to the power meter via the GPIB cable.
   - If using RS-232, connect the computer to the power meter via the RS-232 cable.

NOTE:	The COM2 RS-232 port is normally used but COM1 may be used if it is available. No other programs can make use of this port at any time during the procedure

2. Ensure that the power meter is turned on.

3. Insert the appropriate firmware disc into drive A.

4. Run *EPM Dload for Windows 95,NT*:
   - Select **Start**, **Programs**, **Agilent EPM and EPM-P Dload** from the Windows task bar
   - Select **Agilent EPM and EPM-P Dload**

5. Ensure that the Recover from failed download box is ***not*** checked.

6. In the Temporary file box, enter a location where the download program can store data (for example, calibration tables) while upgrading your power meter's firmware. Location C:\info.tmp is acceptable for most computers. This file is used for recovery purposes if the upgrade fails for any reason. It is deleted automatically after a successful upgrade. If the upgrade fails, the file is left to enable recovery as described in Section F. "Recovering From a Failed Upgrade," on page 8.

7. Select the VISA address of your power meter. Either:

   a Click on the down arrow beside the Instrument addr box.
      After approximately 15 seconds you are presented with a list of all EPM-P series power meters connected to your computer. Select the meter to be upgraded.

   or

   b Otherwise, enter your power meter's VISA address into the Instrument addr box.
      - For GPIB, this is in the form:
        GPIB<board>::<address>::INSTR
        e.g. GPIB0::13::INSTR
      - For RS-232 this is in the form:
        ASRL<board>::INSTR
        e.g. ASRL2::INSTR

8. Select the firmware file to be used:
   - Click on the **Browse** button next to the Download file box.
   - Click on the Look in box and select $3^1/_2$ Floppy.
   - Select the appropriate firmware file.
   - Click on Open.

NOTE:	E4416A firmware must be used in E4416A single-channel power meters only. All E4416A firmware filenames begin with e4416_a1.
	E4417A firmware must be used in E4417A dual-channel power meters only. All E4417A firmware filenames begin with e4417_a2.

9. Download the firmware:
   - Click on the Download button.
   - Follow the instructions given on the screen.
10. Verify that the new firmware has been downloaded. On the power meter press [System], [More], **Service**, **Version** . The new firmware revision and firmware date is displayed.

11. To check that the power meter is operating correctly, repeat D. "Instrument Self Test," on page 6.

F. Recovering From a Failed Upgrade

It is unlikely that your upgrade will fail. However, if the upgrade is not successful, two things may happen:
   - Your power meter may stop working.
   - You may lose calibration tables and other data.

To return the power meter to normal operation:

1. Follow steps 1 to 5 of E. "Upgrading Firmware," on page 7.

2. Ensure that the Recover from failed download box *is* checked.

3. Ensure that the Temporary file box contains the location where you stored the temporary file.

4. Follow E. "Upgrading Firmware," on page 7 instructions from step 8.
   Note that if the power meter is not functioning its VISA address cannot be detected automatically and must be entered manually in the Instrument addr box.

NOTE:	The temporary file is *not* over-written if the Recover from failed download box *is* checked. It is deleted afterwards if the upgrade is successful. If the upgrade is unsuccessful then the file is unaltered, enabling another attempt to be made.

G. Troubleshooting Hints

G.1 "dloadwin32.exe - Unable to locate DLL
The dynamic link library VISA32.DLL could not be found in the specified path..."

Ensure that *VISA* is installed correctly on your computer.

G.2 I clicked on the 'down' arrow beside Instrument addr, and my power meter was not on the list.

Ensure that your power meter is connected to the PC. The *VISA* library must be set up for the GPIB interface card. Also ensure that the power meter's programming language is set to SCPI (see the User's Guide for how to do this).

G.3 "Could not open VISA session with instrument at <address>"

Ensure that you have entered the correct address for your power meter. The *VISA* library must be set up for the GPIB interface card.

G.4 "Instrument returns identity <ID>
This download program can only be used with EPM power meters"

Ensure that the address entered is correct, and that there are no other instruments connected using this address.

G.5 "File <filename> contains errors"

The firmware file which you have selected is not a valid dload file, or does not exist. Check that you have entered the correct path

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