Keysight E4416A and E4417A EPM-P Series Power Meters

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Installation
Note

KEYSIGHT
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Introduction

Keysight EPM-P Series power meter firmware is upgraded by downloading new firmware files from disc via the computer GPIB. This requires the upgraded firmware files and the *Keysight EPM and EPM-P Dload program*. Both are supplied with firmware upgrade kit E4416-61016 as shown below in Table 1-1 on page 6.

They can also be obtained from the internet—for further information refer to "Step 1: Obtaining The Firmware And Download Program From The Internet" on page 10.

This installation note details how to perform a firmware upgrade.

Firmware Upgrade Requirements

Product Affected:	Keysight EPM-P Series Power Meters: E4416A and E4417A
Seiral Numbers:	All
Options:	All
To Be Performed By:	(X) Keysight Service Center
	(X) Personnel Qualified by Keysight
	(X) Customer
Estimated Installation Time:	10 minutes via GPIB
Estimated Verification Time:	1 minute

Firmware Upgrade Kit E4416-61016 Parts List

Table 1-1   Parts List

Item	Quantity	Description	Part Number
1	1	Three firmware files and download program	E4416-61015
2	1	Installation Note (this document)	E4416-90015

Hardware Required

Table 1-2   Equipment required for GPIB Connection

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

Software Required

- The PC must be running Windows 2000, Windows XP, or Windows 7.
- The PC must have the VISA library installed. (Typically installed during the GPIB card driver installation)

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Step 1: Obtaining The Firmware And Download Program From The Internet

1 Access the following URL:
http://www.home.Keysight.com/Keysight/
facet.jspx?t=80045.k.1&co=153599.i.2&cc=US&lc=eng&sm=g

2 Select "EPM-P Series Power Meter Firmware Upgrade......"

3 Download the Firmware Upgrade Utility:

– Select the "setupload.exe" link.

– When the download dialog box appears, click **Save** and select C drive. The file "DOW-1000001782.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, click **Run** to begin the installation.

4 Download the firmware:

– 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, click **Save** and select drive C.

– Click the **Save** button to start the file transfer.
The **Saving Location** window appears, showing the file transfer progress. When file transfer is complete, click **Run** to begin installing the program.

5 Decompress the downloaded firmware file:

- Ensure that the firmware is in drive C.

- From the Windows task bar select **Start > Run** and click on the **Browse**... button.

- Select the required firmware file. Click **OK**.

- When the **WinZip Self-Extractor** window opens, select **Unzip**.

- Close the **WinZip Self-Extractor** window when complete.

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

Step 2: 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 System, 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 System, **Error List** and use **Next** to scroll through the error messages.

Step 3: Upgrading Firmware

This procedure shows how to download new firmware into the power meter.

1. Connect the computer to the power meter via the GPIB cable.

2. Ensure that the power meter is turned on.

3. Run the download program:

   – Select **Start > Programs > Keysight EPM and EPM-P Dload** from the Windows task bar

   – Select **Keysight EPM and EPM-P Dload**

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

5. 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 "Step 4: Recovering From a Failed Upgrade" on page 15.

6 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.

```
GPIB<board>::<address>::INSTR
e.g. GPIB0::13::INSTR
```

7 Select the firmware file to be used:

    – Click the **Browse** button next to the **Download file** box.

    – Click the **Look in** box and select drive C.

    – Select the appropriate firmware file.

    – Click **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.

8 Download the firmware to the power meter:

    – Click on the **Download** button.

    – Follow the instructions given on the screen.

9 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.

10 To check that the power meter is operating correctly, repeat

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Step 4: 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 4 of "Step 3: Upgrading Firmware" on page 13.

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 "Step 3: Upgrading Firmware" on page 13 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.

Troubleshooting Hints

1 "dload win32.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.

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).

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.

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.

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.

6 **"I tried to recover the power meter from a previously failed download, but the power meter does not work."**

Aborted or failed downloads may leave the power meter in an unknown state. If this is the state, the recovery process in Step 4 is insufficient. Should this state occur, you need to perform a "Memory Clear" on the power meter and follow the recovery process again. To perform a "Memory Clear", switch off the power meter and switch on the power meter while holding down the third softkey (The third key below PREV) at the same time.

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