

Installation Note

**EPM Series Power Meters
HP E4418A/B and E4419A/B
Firmware Upgrade Kit: Part Number E4418-61035**



HP Part Number E4418-90043
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EPM Series Power Meters

HP E4418A, HP E4419A, HP E4418B and HP 4419B

Firmware Upgrade Kit: Part Number E4418-61035

Product Affected:	EPM Series Power Meters: HP E4418A (formerly EPM-441A), HP E4419A (formerly EPM-442A), HP E4418B and HP E4419B
Serial Numbers:	All
Options:	All
To Be Performed By:	(X) HP Service Center (X) Personnel Qualified by HP (X) Customer
Estimated Installation Time:	10 minutes via GPIB, 30 minutes via RS-232
Estimated Verification Time:	1 minute

A. Introduction

The firmware is upgraded by downloading the updated firmware files via computer GPIB or RS-232 interface. This requires the *HP EPM Dload for Windows 95,NT* program, and the new firmware. The upgrade is carried out by running the program on a PC with either Windows 95[®] or Windows NT[®] 4.0. The program and the new firmware can be obtained free via the Internet or by purchasing Firmware Upgrade Kit E4418-61035. This installation note details how to obtain the program and firmware via the Internet, and how to upgrade the firmware on an EPM series power meter.

NOTE Firmware can only be upgraded via the RS-232 port if the power meter has an RS-232 port installed. RS-232 ports are only fitted to HP E4418B and E4419B and later power meters.

A.1 Installation Kit Parts List

Table 1 Parts Kit E4400-61035 Contents

Item	Quantity	Description	Part Number
1	1	Set of 3 discs	E4418-61037
2	1	Installation Note	E4418-90043

A.2 Tools Required

Table 2 Tools Required for GPIB or RS-232 Connection

Quantity	Description	Part Number
	None	

A.3 Equipment Required

1. Hardware

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

- If you are obtaining the program and new firmware via the Internet, you also require three empty, formatted 3.5 inch Double Sided, High Density floppy disks.
- ### 2. Software
- 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 *HP EPM Dload for Windows 95,NT* and new firmware via the Internet

This procedure uses an internet browser to obtain the program and firmware needed to perform a firmware upgrade on your power meter. (Netscape Navigator was used in this example. Other internet browsers may differ in detail.)

NOTE This procedure is unnecessary if you have purchased Firmware Upgrade Kit E4418-61035. If so, go straight to C. "Installing HP EPM Dload for Windows 95,NT" on page 6.

1. Access the "HP Test & Measurement" web page at the following URL:
<http://www.tmo.hp.com/>
2. Use the search tools on the **Product Information** page to display either the HP E4418B single channel power meter or the HP E4419B dual channel power meter pages.
3. Use the **Technical Support** link to find the **Software Patches & Drivers** section. Select the **Firmware Upgrade** link.
4. To download *HP EPM Dload for Windows 95,NT* to a PC, proceed as follows:
 - Place an empty, formatted disk in drive A.
 - Click on the "**HP EPM Dload**" link at the bottom of the page.
 - When the download dialog box appears, select drive A.
 - The file `setupdownload.exe` is displayed in the File name window. Click the **Save** button to start the file transfer. (Refer to C. "Installing HP EPM Dload for Windows 95,NT," on page 6 for installation.)
 - The Saving Location window opens showing the file transfer progress. When file transfer is complete the dialog box closes.
 - Remove the floppy disc. Ensure it is labelled accordingly
5. To download the latest firmware (in compressed format) to a PC, follow these steps:
 - Place an empty, formatted disk in drive A.
 - Click on the **HP E4418A/B firmware** link or the **HP E4419A/B firmware** link as applicable.

NOTE HP E4418A/B firmware must only be used in HP E4418A or HP E4418B single-channel power meters, and HP E4419A/B firmware in HP E4419A or HP E4419B dual-channel power meters.

To identify the files, HP E4418A/B (single channel meters) firmware files have names starting with `e4418_a1`; HP E4419A/B (dual channel meters) firmware files have names starting with `e4419_a2`.

- When the download dialog box appears select drive A.
 - Click the **Save** button to start the file transfer.
 - The Saving Location window will appear showing the file transfer progress. When file transfer is complete the dialog box closes.
 - Remove the floppy disc. Ensure it is labelled accordingly
6. When you have downloaded all the files you require you may close your internet browser.
 7. To decompress the downloaded firmware, proceed as follows:
 - Ensure that the firmware disk is in drive A.
 - On the Windows Task Bar select **Start, Run...** and click on the **Browse...** button.
 - Select the required firmware file. Press **OK**.
 - When the WinZip Self-Extractor window opens, select **Unzip**.
 - Close the WinZip Self-Extractor window when complete.

C. Installing *HP EPM Dload for Windows 95,NT*

This procedure installs *HP EPM Dload for Windows 95,NT* on a PC running Windows 95® or Windows NT® 4.0.

1. Insert the program disk into drive A.
2. On the Windows Task Bar select **Start, Run...** and enter `A:\setupdload.exe`
3. Press **OK**.
4. To verify that *HP EPM Dload for Windows 95,NT* has been installed, select **Start, Programs, HP EPM Dload** on the Windows Task Bar. Ensure the program short-cut **HP EPM Dload for Windows 95,NT** is displayed.



D. Functionality Check

This procedure verifies that the power meter internal check identifies no errors.

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 Self Test. If the self test is not successful the error annunciator turns on.
2. Perform a full Instrument Self Test by pressing **System Inputs**, **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 Inputs**, **More**, **Error List**. The first error message is shown on the display. Refer to the Error Messages chapter in your *User's Guide* for more detailed error message information.
4. Continue pressing the **Next** softkey until you have seen all of the messages.
5. When you have resolved all of the error messages, press **Done**.

E. Upgrading Firmware

This procedure uses a PC running Windows 95[®] or Windows NT[®] 4.0 to download new firmware into the power meter.

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

NOTE Typically the COM2 RS-232 port is used but COM1 is acceptable 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 required firmware disk into drive A.
4. Run *HP EPM Dload for Windows 95,NT*:
 - On the Windows Start Bar select **Start, Programs, HP EPM Dload**.
 - Select **HP EPM Dload for Windows 95,NT**.
5. Ensure that the Recover from failed download box is **not** checked.
6. In the Temporary file box, enter a location where *HP EPM Dload for Windows 95,NT* can store data (e.g. calibration tables) while upgrading your power meter's firmware. This file is used to recover if the upgrade fails for any reason. The temporary file is deleted automatically after a successful upgrade; if unsuccessful, the file is left to enable recovery as described in Section F. "Recovering From a Failed Upgrade," on page 8. Location C:\info.tmp is acceptable on most computers.
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 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. This is in the form (for GPIB)
GPIB<board>::<address>::INSTR
e.g. GPIB0::13::INSTR
or (for RS-232) 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 required firmware file.
 - Click on Open.

NOTE HP E4418A/B firmware must only be used in HP E4418A or HP E4418B single-channel power meters, and HP E4419A/B firmware in HP E4419A or HP E4419B dual-channel power meters.

To identify the files, HP E4418A/B (single channel meters) firmware files have names starting with e4418_a1; HP E4419A/B (dual channel meters) firmware files have names starting with e4419_a2.

9. Carry out the firmware upgrade:
 - Click on the Download button.
 - Follow instructions given on the screen.
10. Verify that the new firmware has been downloaded. On the power meter press **System Inputs**, **More**, **Service**, **Version**. The new firmware revision and firmware date is displayed.
11. To check that the power meter is operating correctly, repeat D. "Functionality Check," 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.

It is however, an easy task 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 address box.

NOTE The temporary file is not over-written if the Recover from failed download box is checked. It is however, deleted afterwards if the upgrade is successful. If the upgrade is unsuccessful then the file is unaltered to enable 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 Hewlett-Packard 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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