

# Installation Note

---

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



HP Part Number E4418-90043  
Printed in UK September 1999

Notice.

The information contained in this document is subject to change without notice.

Hewlett-Packard makes no warranty of any kind with regard to this material, including but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Hewlett-Packard shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

Windows 95 and Windows NT are U.S. registered trademarks of Microsoft Corporation.

# 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<sup>®</sup> or Windows NT<sup>®</sup> 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<sup>®</sup> or Windows NT<sup>®</sup> 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 `setupdload.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 on 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<sup>®</sup> or Windows NT<sup>®</sup> 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

## **Hewlett-Packard Software License Agreement.**

ATTENTION: USE OF THE SOFTWARE IS SUBJECT TO THE HP SOFTWARE LICENSE TERMS SET FORTH BELOW. USING THE SOFTWARE INDICATES YOUR ACCEPTANCE OF THESE LICENSE TERMS. IF YOU DO NOT ACCEPT THESE LICENSE TERMS, YOU MUST RETURN THE SOFTWARE FOR A FULL REFUND. IF THE SOFTWARE IS SUPPLIED WITH ANOTHER PRODUCT, YOU MAY RETURN THE ENTIRE UNUSED PRODUCT FOR A FULL REFUND.

### **HP SOFTWARE LICENSE TERMS.**

The following terms govern your use of the enclosed Software unless you have a separate written agreement with HP.

#### **License Grant.**

HP grants you a license to Use one copy of the Software. "Use" means storing, loading, installing, executing or displaying the Software. You may not modify the Software or disable any licensing or control features of the Software. If the Software is licensed for "concurrent use", you may not allow more than the maximum number of authorized users to Use the Software concurrently.

#### **Ownership.**

The Software is owned and copyrighted by HP or its third party suppliers. Your license confers no title or ownership in the Software and is not a sale of any rights in the Software. HP's third party suppliers may protect their rights in the event of any violation of these License Terms.

#### **Copies and Adaptations.**

You may only make copies or adaptations of the Software for archival purposes or when copying or adaptation is an essential step in the authorized Use of the Software. You must reproduce all copyright notices in the original Software on all copies or adaptations. You may not copy the Software onto any bulletin board or similar system.

#### **No Disassembly or Decryption.**

You may not disassemble or decompile the Software unless HP's prior written consent is obtained. In some jurisdictions, HP's consent may not be required for disassembly or recompilation. Upon request, you will provide HP with reasonably detailed information regarding any disassembly or decompilation. You may not decrypt the Software unless decryption is a necessary part of the operation of the Software.

#### **Transfer**

Your license will automatically terminate upon any transfer of the Software. Upon transfer, you must deliver the Software, including any copies and related documentation, to the transferee. The transferee must accept these License Terms as a condition to the transfer.

#### **Termination.**

HP may terminate your license upon notice for failure to comply with any of these License Terms. Upon termination, you must immediately destroy the Software, together with all copies, adaptations and merged portions in any form.

#### **Export Requirements.**

You may not export or re-export the Software or any copy or adaptation in violation of any applicable laws or regulations.

**U.S. Government Restricted Rights.**

The Software and documentation have been developed entirely at private expense and are provided as “Commercial Computer Software” or “restricted computer software”. They are delivered and licensed as “commercial computer software” as defined in DFARS 252.227-7013 (Oct 1988), DFARS 252.211-7015 (May 1991) or DFARS 252.227-7014 (Jun 1995), as a “commercial item” as defined in FAR 2.101 (a), or as “Restricted computer software” as defined in FAR 52.227-19 (Jun 1987) (or any equivalent agency regulation or contract clause), whichever is applicable. You have only those rights provided for such Software and Documentation by the applicable FAR or DFARS clause or the HP standard software agreement for the product.

## **HEWLETT-PACKARD LIMITED WARRANTY STATEMENT.**

1. HP warrants to you, the end-user customer, that HP hardware, accessories and supplies, will be free from defects in materials and workmanship after the date of purchase, for the period specified above. If HP receives notice of such defects during the warranty period, HP will, at its option, either repair or replace products which prove to be defective.
2. HP warrants to you that HP software will not fail to execute its programming instructions after the date of purchase, for the period specified above, due to defects in material and workmanship when properly installed and used. If HP receives notice of such defects during the warranty period, HP will replace software media which does not execute its programming instructions due to such defects.
3. HP does not warrant that the operation of HP products will be uninterrupted or error free. HP products may contain remanufactured parts equivalent to new in performance or may have been subject to incidental use. If HP is unable, within a reasonable time, to repair or replace any product to a condition as warranted, you will be entitled to a refund of the purchase price upon prompt return of the product.
4. Warranty does not apply to defects resulting from (a) improper or inadequate maintenance or calibration, (b) software, interfacing, parts or supplies not supplied by HP, (c) unauthorized specifications for the product, or (e) improper site preparation or maintenance.
5. ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS LIMITED TO THE DURATION OF THE EXPRESS WARRANTY SET FORTH ABOVE. Some states or provinces do not allow limitations on the duration of an implied warranty, so the above limitation or exclusion might not apply to you. This warranty gives you specific legal rights and you might also have other rights that vary from state to state, or province to province.
6. THE REMEDIES IN THIS WARRANTY STATEMENT ARE YOUR SOLE AND EXCLUSIVE REMEDIES. EXCEPT AS INDICATED ABOVE, IN NO EVENT WILL HP BE LIABLE FOR LOSS OF DATA OR FOR DIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFIT), OR OTHER DAMAGE, WHETHER BASED IN CONTRACT, TORT, OR OTHERWISE. Some states or provinces do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

Copyright© Hewlett-Packard Company 1999. All Rights Reserved.

Reproduction, adaptation, or translation without prior written permission is prohibited, except as allowed under the copyright laws.

3000 Hanover Street, Palo Alto, CA 94304, USA

Windows 95 and Windows NT are registered trademarks of Microsoft Corp.

HP is a registered trademark of Hewlett-Packard Company.