Agilent EPM and EPM-P Series Power Meters
E-Series Power Sensors

Configuration Guide

Introduction

This configuration guide describes the standard configurations, options, and compatible accessories of EPM Series and EPM-P Series power meters. For full specifications, see *EPM Series Power Meters and E-Series Power Sensors Data Sheet* (Agilent literature number 5965-6382E) or *EPM-P Series Power Meters and E9320 Power Sensors Data Sheet* (Agilent literature number 5980-1469E). Contact your local Agilent Technologies representative at the offices listed on the back of this guide if you need more information.

Figure 1. EPM Series power meters

EPM Series power meters
- N1913A power meter (single channel)
- N1914A power meter (dual channel)

EPM-P Series power meters
- E4416A power meter (single channel)
- E4417A power meter (dual channel)

E-Series power sensors
- E441xA CW power sensors (10 MHz to 26.5 GHz, sensor dependent)
- E9300 average power sensors (9 kHz to 18 GHz, sensor dependent)
- E9320 peak and average power sensors (50 MHz to 18 GHz, sensor dependent)

EPM-P Series Power Meters

The EPM-P Series power meters provide peak, peak-to-average ratio, average, and time-gated power measurements. For peak, peak-to-average ratio, and time-gated measurements, the EPM-P Series power meters must operate with the E-Series E9320 power sensors. For average power measurements only, the EPM-P Series power meters are compatible with all the 8480 Series power sensors, the E-Series CW, the E-Series E9300 average power sensors, and the E-Series E9320 power sensors.

The standard E4416A and E4417A power meters include:

- Single-channel power meter, order **E4416A** or dual-channel power meter, order **E4417A**
- Input sensor connector(s) on the front panel
- Reference calibrator connector on the front panel
- Printed copy of English-language *Installations Guide*
- Printed copy of English-language *User's Guide* (Option 0BK)
- Product Reference CD-ROM, contains English-language and localized *User's Guide*, English-language *Programming Guide* and Agilent EPM-P analyzer software
- Supplied accessories:
  - Power sensor cable (1.5 meter (5 ft) E9288A), one per E4416A and two per E4417A
  - Power cord (plug matches destination requirements)

EPM Series Power Meters

The EPM Series power meters provide average power measurements.

The standard N1913A and N1914A power meters include:

- Single-channel power meter, order **N1913A** or dual-channel power meter, order **N1914A**
- Input sensor connector(s) on the front panel
- Reference calibrator connector on the front panel
- Printed copy of English-language *User's Guide* (Option ABA)
- Printed copy of Installation guide
- Agilent IO Libraries Suite Automation Ready CD
- Standard Calibration of Certificate
- Standard 3-years, return to Agilent warranty and service plan
- Supplied accessories:
  - Power sensor cable (1.5 meter (5 ft) 11730A), one per N1913A and two per N1914A
  - Power cord (plug matches destination requirements)

E-Series Power Sensors

The standard E4412A and E4413A CW power sensors include:

- Power sensor 10 MHz to 18 GHz, order **E4412A**, or power sensor 50 MHz to 26.5 GHz, order **E4413A**
- English-language *Operating and Service Guide*

The standard E9300 average power sensors include:

+20 to –60 dBm:

- Power sensor 10 MHz to 18 GHz, order **E9300A**
- Power sensor 10 MHz to 6 GHz, order **E9301A**
- Power sensor 9 kHz to 6 GHz, order **E9304A**

+30 to –50 dBm:
- Power sensor 10 MHz to 18 GHz, order **E9300H**
- Power sensor 10 MHz to 6 GHz, order **E9301H**

+44 to –30 dBm:
- Power sensor 10 MHz to 18 GHz, order **E9300B**
- Power sensor 10 MHz to 6 GHz, order **E9301B**
- English-language *Operating and Service Guide* (part number E9300-90009)

The standard E9320 peak and average power sensors include:
- Power sensor, 50 MHz to 6 GHz, 300 kHz bandwidth, order **E9321A**
- Power sensor, 50 MHz to 6 GHz, 1.5 MHz bandwidth, order **E9322A**
- Power sensor, 50 MHz to 6 GHz, 5 MHz bandwidth, order **E9323A**
- Power sensor, 50 MHz to 18 GHz, 300 kHz bandwidth, order **E9325A**
- Power sensor, 50 MHz to 18 GHz, 1.5 MHz bandwidth, order **E9326A**
- Power sensor, 50 MHz to 18 GHz, 5 MHz bandwidth, order **E9327A**
- English-language *Operating and Service Guide*

Compatibility

Power sensor compatibility

For compatibility of power meters, power sensors, and power sensor cables, please refer to the table below.

Power Sensors	Power Meters		Power Sensor Cables	
	EPM-P Series	EPM Series	11730 (grey)	E9288 (blue)
E441x family	Yes	Yes	Yes	Yes
E9300 family	Yes	Yes	Yes	Yes
E9320 family	Yes	No	No	Yes
8480 Series	Yes	Yes	Yes	Yes
N8480 Series	Yes	Yes	Yes	Yes
U2000 Series	Yes	Yes	Not applicable	Not applicable

Firmware compatibility

Firmware upgrade information can be accessed from the World Wide Web, free of charge.

Calibration Options

- E441xA/B-A6J - Supplies ANSI Z540 certificate of calibration with data.
- E441xA/B-1A7 - Supplies ISO 17025 certificate of calibration with data.
- N1913/4A-A6J - Supplies ANSI Z540 certificate of calibration with data.
- N1913/4A-1A7 - Supplies ISO 17025 certificate of calibration with data.
- E93xxA/B/H-A6J - Supplies ANSI Z540 certificate of calibration with data.

Hardware Options

The following options are available on the EPM and EPM-P Series power meters.

EPM Series power meter

Option	Description
N1913/4A-004	Delete power sensor cable
N1913/4A-101	Single/dual-channel average power meter
N1913/4A-201	Single/dual-channel average power meter with VGA, trigger in/out, one front and one rear USB ports
N1913/4A-B01	Without battery. (Need to order together with option-201)
N1913/4A-B02	Without battery. (Need to order together with option-201)
N1913/4A-C01	Front calibrator, front sensor (Need to order together with option-201)
N1913/4A-C02	Rear calibrator, parallel front and rear sensor (Need to order together with option-201)
N1913/4A-C03	Rear calibrator, parallel front and rear sensor (Need to order together with option-201)
N1913A-200	436A and 437B code compatibility via GPIB interface only. 436A and 437B language modes are not compatible with LAN or USBTM remote interface.
N1914A-200	438A code compatibility via GPIB interface only. 438A language mode is not compatible with LAN or USBTM remote interface.
N1913/4A-300	Battery pack - spare
N1913/4A-908	Rack mount kit (one instrument). Can be ordered as stand-alone.
N1913/4A-909	Rack mount kit (two instruments). Can be ordered as stand-alone.
N1918A-100	Power analyzer (with PC license)
N1918A-200	Power analyzer (with USB license key)
N6901A-1FP	Code Compatibility (436A, 437A, 438A) Standalone Upgrade for N1913A
N6902A-1FP	Code Compatibility (436A, 437A, 438A) Standalone Upgrade for N1914A

EPM-P Series power meter

Option	Description
E441xA/B-002	Parallel rear panel sensor input connector(s) and front panel reference calibrator connector
E441xA/B-003	Parallel rear panel sensor input connector(s) and rear panel reference calibrator connector
E441xA/B-004	Delete power sensor cable
E441xA/B-908	Rack mount kit (one instrument). Can be ordered as stand-alone.
E441xA/B-909	Rack mount kit (two instruments). Can be ordered as stand-alone.

Service and Support Options

Warranty

A standard 3-year, return to Agilent warranty and service plan is included with each EPM and EPM-P Series power meter. The following warranty and service plans are also available:

R-51B-001-Z Return to Agilent Warranty - 3 years
R-51B-001-5Z Warranty Assurance Plan - Return to Agilent - 5 years

Calibration[1]

The following calibration options are available:

R-50C-011-3 Calibration Assurance Plan - Return to Agilent - 3 years
R-50C-011-5 Calibration Assurance Plan - Return to Agilent - 5 years
R-50C-016-3 ISO 17025 compliant calibration plan, 3 years
R-50C-016-5 ISO 17025 compliant calibration plan, 5 years
R-50C-021-3 ANSI Z540-1-1994 calibration plan, 3 years
R-50C-021-5 ANSI Z540-1-1994 calibration plan, 5 years

1. Options are not available in all countries.

Special Options

Special options for EPM-P Series power meters, EPM Series power meters, and E-Series sensors are available. The special options provide customized measurement capabilities to fit a wider range of applications. Contact your local Agilent representative for more information.

Documentation

- The EPM power meters are supplied with a Product Reference CD-ROM which contains the English-language *User's Guide*, *Service Guide*, *Programming Guide*, *Installation Guide*, and localized versions of the *User's Guide*.
- The EPM-P power meters are supplied with a Product Reference CD-ROM which contains the English-language *User's Guide*, *Service Guide*, *Programming Guide*, *Installation Guide*, and localized versions of the *User's Guide*.
- In support of the environmentally-friendly initiative, all printed documents are purchasable option. The following table shows the option numbers to order the documentation.

Documentation	EPM-P Series Power Meter	EPM Series Power Meter
User's Guide and Installation Guide (English)	E441xA-0B1	N1913/4A-0B1
Programming Guide	E441xA-0BF	N1913/4A-0BF
Service Guide	E441xA-0B3	Not available
Delete manual set	E441xA-0B0	N1913/4A-0B0
Add manual set, User's Guide and Programming Guide (English)	E441xA-0BK	N1913/4A-0BK

Documentation	E4412/3A	E9300	E9320A
Add manual set	E4412/3A-0B1	E930xx-0B1	E932xA-0B1

Localization options

The following table shows the option number to order the documentation.

The following options provide a printed copy of the localized *User's Guide*. For the EPM and EPM-P, the localized manuals are available on the Product Reference CD-ROM supplied with the product. The localized options for the EPM and EPM-P provide a printed copy of the localized *User's Guide* and a printed copy of the English-language *Programming Guide.*

Language	EPM-P Series power meter	EPM Series power meter	E4412/3A sensors	E9300 sensors
German	E441xA-ABD	Not available	E4412/3A-ABD	E930xx-ABD
Spanish	E441xA-ABE	Not available	E4412/3A-ABE	E930xx-ABE
French	E441xA-ABF	Not available	E4412/3A-ABF	E930xx-ABF
Japanese	E441xA-ABJ	N1913/4A-ABJ	E4412/3A-ABJ	E930xx-ABJ
Italian	E441xA-ABZ	Not available	E4412/3A-ABZ	E930xx-ABZ
Korean	Not available	Not available	Not available	E930xx-ABI

Available Accessories

- E9288A-C power sensor cables (refer to the compatibility section):
  - 1.5 meters (5 ft) **E9288A**
  - 3 meters (10 ft) **E9288B**
  - 10 meters (31 ft) **E9288C**

- 11730A-F power sensor cables (refer to the compatibility section):
  - 1.5 meters (5 ft) **11730A**
  - 3 meters (10 ft) **11730B**
  - 6.1 meters (20 ft) **11730C**
  - 15.2 meters (50 ft) **11730D**
  - 30.5 meters (100 ft) **11730E**
  - 61 meters (200 ft) **11730F**

- Accessory pouch, **34161A**
  Holds accessories supplied or ordered

- Basic instrument transit case, **34131A**
  Protects the power meter during transit

- Soft carry/operating case, **34141A**
  Power meter with battery option can be operated in soft carry case

- Spare battery, **N1913/4A-300**
  Extra battery for EPM Series power meters with Option 102

Auxiliary Equipment

The 11683A range calibrator verifies the accuracy and linearity of the EPM-P and EPM Series power meters. Outputs corresponding to the meter readings of 3, 10, 30, 100, and 300 µW and 1, 3, 10, 30, and 100 mW are provided. Calibration uncertainty is ±0.25% on all ranges.

Literature References

- *EPM-P Series Power Meters and E9320 Sensors Product Overview, literature number 5980-1471E*
- *EPM-P Series Power Meters and E9320 Sensors Data Sheet, literature number 5980-1469E*
- *EPM-P Series Single and Dual Channel Power Meters Demo Guide, literature number 5988-1605EN*
- *EPM-P Series Power Meters Product Reference CD-ROM, part number E4416-90032*
- *Choosing the Right Power Meter and Sensor Application Note, literature number 5968-7150E*
- *EPM Series Power Meter and E-Series Power Sensors Data Sheet, literature number 5965-6382E*
- *EPM Series Power Meter and E-Series Power Sensors Brochure, literature number 5965-6380E*
- *Fundamentals of RF and Microwave Power Measurements Application Note 64-1, literature number 5965-6630E*
- *4 Steps for Better Power Measurements Application Note 64-4, literature number 5965-8167E*
- *E9300 Power Sensors Technical Overview, literature number 5968-4960E*
- *7 Reasons to Migrate from HP/Agilent E4418/4419B to Agilent N1913/1914A EPM Series Power Meter Migration Guide, literature number 5968-4016EN*

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For other unlisted countries:
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