

8540 Series Universal Power Meter Specifications

Specifications describe the instrument's warranted performance, and apply when using 80300A Series sensors.

Typical performance, (shown in *italics*), is non-warranted.

METER

Frequency Range: 10 MHz to 40 GHz ¹⁴

Power Range: -70 dBm to +47 dBm
(100 pW to 50 Watt) ¹⁴

Single Sensor Dynamic Range:

CW Sensors: 90 dB ¹⁴

Peak Power Sensors:
40 dB, Peak
50 dB, CW

Display Resolution: User selectable from 1 dB to 0.001 dB in Log mode, and from 1 to 4 digits of display resolution in Linear mode.

Meter Functions

Averaging: User selectable, auto-averaging or manual from 1 to 512 readings.

dB Rel and Offset: Power display can be offset by -99.999 to +99.999 dB to account for external loss/gain.

Configuration Storage Registers: Allows up to 20 front panel setups.

Power Measurements and Display

Configuration: Any two of the following channel configurations, simultaneously:
A, B, A/B, B/A, A-B, B-A, DLYA, DLYB.

ACCURACY

Calibrator: Power Sweep Calibration signal to dynamically linearize the sensors.

Frequency: 50 MHz, nominal

0.0 dBm Accuracy: $\pm 1.2\%$ worst case for one year, over temperature range of 5° to 35°C.

VSWR: < 1.05 (Return Loss > 33 dB).

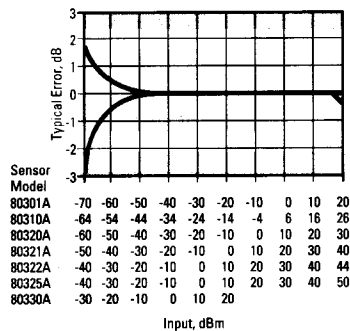
System Linearity at 50 MHz for

Standard CW Sensors:

± 0.02 dB over any 20 dB range from -70 to +16 dBm.

± 0.02 dB + (+0 dB, -0.05 dB/dB) from +16 to +20 dBm.

± 0.04 dB from -70 to +16 dBm.



Graph shows linearity plus zero set and noise vs. input power

Zeroing Accuracy: (Standard Sensors)

Zero Set: < ± 50 pW ¹⁵

Zero Drift: < ± 100 pW during 1 hour ¹⁵

Noise Uncertainty: < ± 50 pW measured over a 1 minute interval. ¹⁵

REMOTE INPUTS/OUTPUTS

V Prop F Input (BNC): Used to correct power readings for sensor frequency response using source VpropF output. ¹⁶

Analog Output (BNC): Provides an output voltage of 0 to 10V from either Channel 1 or 2 in either Lin or Log units. Does not operate in Swift or Burst Modes. ¹⁶

Blanking Output (BNC): TTL High during power meter zero. Can be used to shut off signal generator RF output during sensor zero. ¹⁵

Trigger Input (BNC): TTL trigger input sig-

nal for Swift and Burst modes.

GPIB Interface: IEEE-488 and IEC-625 remote programming.

GENERAL SPECIFICATIONS

Temperature Range:

Operating: 0° to 50°C (+32° to +122°F)

Storage: -40°C to 70°C (-40° to +158°F)

Power Requirements:

100/120/220/240V $\pm 10\%$,

48 to 440 Hz, 20VA typical

Physical Characteristics:

Dimensions: 215 mm (8.4 in) wide,

89 mm (3.5 in) high, 368 mm (14.5 in) deep

Weight: 4.55 kg (10 lbs)

ORDERING INFORMATION

POWER METERS

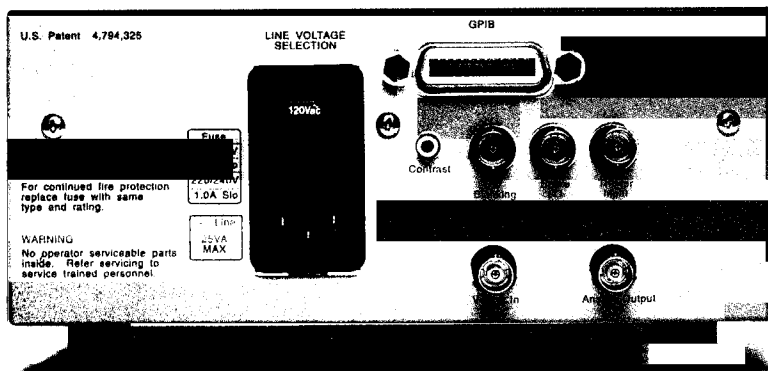
- 8541 Single Input Digital Power Meter (includes 1 each sensor cable)
- 8542 Two Input Digital Power Meter (includes 2 each sensor cable)

ACCESSORIES

One manual, one power cord, one (8451) or two (8452) detachable sensor cables.

POWER METER OPTIONS

- 01 Rack mount kit
- 02 Add 256K buffer for Burst Mode Power Readings. Stores 128,000 readings
- 03 8541 Rear Panel Connections (Sensor and Calibrator, deletes front panel connections)
- 04 8542 Rear Panel Connections (Sensors and Calibrator, deletes front panel connections)
- 05 Soft Carry Case
- 06 Second Analog Output on 8542, -10V to +10V
- 07 Side Mounted Carrying Handle
- 08 Transit Case, (Includes Soft Carry Case)



¹⁴ Depending on sensor used. ¹⁵ Specified performance applies with maximum averaging and 24 hour warm-up at constant temperature. ¹⁶ Operates in Normal Mode only.

Specifications subject to change without notice.

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