

- 0.01-220 GHz operating frequency
- High sensitivity
- Up to 55 dB dynamic range (0.1uW-30mW)
- Small measuring time (< 1 sec)
- RS-232, GPIB interface
- SCPI protocol

## Applications

- Measurements of power level of mm-wave signal
- Test equipment

## Description

The DPM-xx is a single-channel average power meter for RF to millimeter wave frequencies that measures absolute power from 10 MHz to 220 GHz.

DPM-xx Power Meters display measured power in milliWatts, microWatts or dBm, and also display the user-entered signal frequency in GHz. Easy operation is ensured with automatic zeroing, automatic sensor recognition and a calculation factor table stored in the memory of each power sensor.

Their compact size, precise accuracy, reliability and inexpensive pricing make our DPM-xx Power Meters attractive assets for design engineering, equipment manufacturing, field engineering and research.

ELVA-1's ZBD-series Zero-Biased Detectors are used as the power sensors for our DPM Power Meters. To cover the range from 10MHz to 220GHz band, we offer one coaxial (10 MHz-26.5 GHz) and 9 waveguide power sensors (26.5-220 GHz in waveguide bands), sold separately.

Based on Schottky Barrier Diode technology, our ZBD power sensors provide high sensitivity, fast measurement speed and quick response to changes of input power. To extend the dynamic range of diode power sensors above their square law region, a correction factor is used. The amplitude and frequency curves for each individually-calibrated power sensor are stored in the sensor's EEPROM. When a sensor is connected to a DPM control/display unit, the control/display unit automatically recognizes that sensor's characteristics. The typical curves for amplitude and frequency transfer characteristics at W-band are shown on the reverse.

Measured average power is displayed on a 2-line LCD screen, at a measurement rate of 2 times per second or faster. For power measurements below 10-100mW (depending on frequency band), each sensor is supplied with a full-band isolator. For power measurements above those levels (as high as 300mW-1Watt), optional directional couplers are available.

Every DPM-xx is equipped with an RS-232 port for control and measurement data exchange with a PC. An internal GPIB interface board is available as an added option. On special request we can also provide a dual channel power meter of DPMD-XX series with two independent measurement channels.

Since the control/display unit and power sensors are sold separately, customers only need one DPM control/display unit to interface with all 10 of our sensors. To obtain power measurements over a multi-waveguide frequency range, order one DPM control/display unit and several adjacent-band sensors. Because the standard ELVA-1 DPM control/display unit is a single-channel meter, only one power sensor can be used at one time.



## DPM-XX Key Features and Specifications:

- Display readings: milliWatts, microWatts or dBm
- Maximum measuring rate: up to 50 times per second, default 2 times per second (set at factory)
- Frequency Range: 10 MHz to 220 GHz
- Min. measured Power: 0.1 microWatt (depending on frequency band)
- Dynamic Measurement Range: 55dB max. (depending on frequency band)
- Frequency step: 10 MHz
- SCPI or ELVA's command protocol
- RS-232, GPIB interface
- Calibration accuracy  $\pm 0.04$  dB (log) or  $\pm 1\%$
- Power Sensor Calibration: Individually calibrated, with amplitude and frequency curves in flash memory
- If a valid signal frequency is not entered before measuring power, maximum measurement error will be  $\pm 1.5$ dB for Ka, Q, U, V bands,  $\pm 2.0$ dB for E, W bands, and  $\pm 2.5$ dB for F, D bands, based on calibration curve flatness.

MODEL NUMBER	DPM-C	DPM - 28	DPM -22	DPM - 19	DPM -15	DPM -12	DPM -10	DPM -08	DPM - 06	DPM- 05
<b>Frequency Band and Range, GHz</b>	0.01-26.5	Ka 26.5-40	Q 33-50	U 40-60	V 50-75	E 60-90	W 75-110	F 90-140	D 110-170	G 140-220
<b>Input Waveguide/Impedance</b>	50 Ohm Coaxial	WR-28	WR-22	WR-19	WR-15	WR-12	WR-10	WR-08	WR-06	WR-05
<b>Waveguide Flange/Connector</b>	SMA, male	UG-599/U	UG-383/U	UG-383/U-M	UG-385/U	UG-387/U	UG-387/U-M	UG-387/U-M	UG-387/U-M	UG-387/U-M
<b>Dynamic Range, dB (max)</b>	50	55	55	55	55	55	55	55	50	40
<b>Min Measured Power Level, dBm</b>	-33	-43	-43	-43	-43	-43	-40	-40	-35	-25
<b>Measurement Rate (default), times per sec</b>	2	2	2	2	2	2	2	2	2	2
<b>VSWR (power sensor)</b>	1.2:1	1.3:1	1.3:1	1.3:1	1.3:1	1.4:1	1.4:1	1.4:1	1.4:1	1.7:1

Available operating power options: 220 VAC, 110/100 VAC, or battery power (for portable version).

## How to Order

Specify Model Number DPM-XX /P/V, where

- **XX** – number of waveguide standard (Ex. 10 for WR-10 and 06 for WR-06)
- **P**- max input power (mW), exceeded power level can burn a sensor
- **V** – power supply voltage (Volts) or B if portable version with batteries

## Example

**DPM-10/20/220** (W-band power meter, WR-10, operating frequency band 75-110GHz, max power level 20 mW, 220VAC supply voltage)

**DPM-15/10/110** (V-band power meter, WR-15, operating frequency band 50-75GHz, max power level 10 mW, 110VAC supply voltage)

**DPM-06/30/B** (D-band power meter, WR-06, operating frequency band 110-170GHz, max power level 30 mW, portable version)