

ULTRASOUND POWER METER MODEL UPM-DT-1000PA



Approved Electronics



NEW!

- **FASTEST RESPONSE TIME: LESS THAN 3 SECONDS**
- **HIGHEST RESOLUTION: 1mW OR .1 mg IN GRAMS MODE**
- **FIVE POINT CERTIFICATION (NIST TRACEABLE)**
- **MEASUREMENT RANGE: 0-30 WATTS**
- **FREQUENCY RANGE: .5 TO 10MHZ**
- **MEASURES TOTAL PULSED OR CONTINUOUS POWER**
- **AUTOMATIC ZEROING & STABILIZATION**
- **DIGITAL DISPLAY & RS-232 INTERFACE**



UPM-DT SERIES WATTMETERS VERIFIED BY NIST & FDA

OHMIC Instruments Newest Model UPM-DT-1000PA provides the fastest response (under 3 seconds) and the highest resolution (0.001 watts) of any current UPM-DT. The UPM-DT series have been in use worldwide since 1986 and conform to the testing guidelines recommended by FDA, JCAHO, AAMI and AIUM. Power is measured by the radiation force balance method. The accuracy of the UPM-DT's are traceable to NIST.

Principle of Operation

The most reliable and repeatable means of measuring ultrasound power is the radiation force balance method. The transducer to be tested is centered above a 45° air-backed cone target in water media, which is linked to a precision balance capable of resolving 0.1 mg. When acoustic energy is applied to the cone, the resultant force exerted on the load cell of the balance is directly proportional to the total radiated power. The test tank is lined with sonic absorbent rubber to prevent power reflection. The balance is programmed to convert milligram magnitude forces directly to a readout in watts with resolution to the nearest 0.001 watt. Verification of the UPM-DT-Series is easily accomplished by placing a calibrated weight

on the arm of the target cone. (A 1-gram weight is equal to 14.65 watts.) OHMIC also maintains NIST traceable masses and ultrasound standards, therefore the units can be returned for periodic recertification.

The Importance of Calibrating Ultrasound Transducers

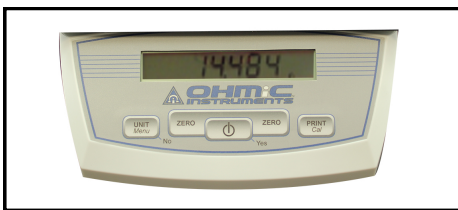
It is important to measure ultrasound power levels to verify correct patient exposure and reduce potential risks. All diagnostic and therapeutic Doppler and ultrasound equipment should be tested periodically. Typical safe values are defined by the temporal average intensity at the point in the acoustic field where the intensity is at its maximum value, referred to as Spatial Peak Temporal Average (SPTA). The FDA and AIUM provide guidelines for the maximum SPTA values in medical applications. Typical safe SPTA values are 10mW/cm² for echo sounding, 100 mW/cm² for Doppler devices and 3W/cm² for therapeutic use. The watt density (watts/cm²) of a transducer is determined by measuring the total power output and dividing by the active cross sectional area of the transducer. A sample form to document and report ultrasound performance is included in the manual.

WARRANTY: All products manufactured by OHMIC Instruments are warranted to be free of defects in material and workmanship for one year after delivery. Any equipment found to be defective within this period will be repaired or replaced free of charge.

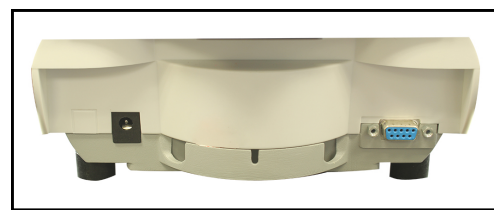
SPECIFICATIONS - UPM-DT-1000PA

	UPM DT-1000PA
Power Range	0- 30 Watts
Resolution/Uncertainty	1 mW (.1mg in grams mode)
Display Sensitivity	0.001 Watt
Accuracy	± 3% @10 Watts, 25°C
Zeroing Method	Automatic
Response Time	<3.0 Seconds
Maximum Transducer Size	4 1/2" Diameter
Transducer Operating Frequency	.5-10MHz
Test Media	Degassed Water
Computer Interface	RS-232, 600-19200 Baud
Default Baud Rate	2400
Power *	* 120 VAC to 12 VAC 500 mA adapter with 6 Ft. cord
EMC	EMC 2004/108/EC, Low Voltage Directive 2006/95/EC, AS/NZS4251.1, AS/NZS5252.1
CSA C&US	CAN/CSA-C22.2 No. 1010.1-92 UL Std No. 3101-1
Electronic Compliance	EN 61010-1:2001, EN 61326-1:2006
Size	11"H x 15" L x 10"W
Weight	16 Lbs Net
Carrying Case	Black Anodized Aluminum

*** Power packs and cord sets are available to meet any configuration or VAC needed.**



UPM-DT Series Ultrasound Power Meters feature a high contrast alphanumeric LCD display. Membrane "touch buttons" enable quick setup, automatic zero, selection of units for the power reading (grams or Watts "custom"), and printer control.



The rear panel of the UPM-DT-1000PA Series showing the power connection and RS-232 port.

ENGINEERING SUPPORT: OHMIC Instruments designs and manufactures a full line of environmental and bio-medical sensors, instruments and controls. Many of our products are custom designed to meet specific requirements. Our engineers will be pleased to discuss your application.



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