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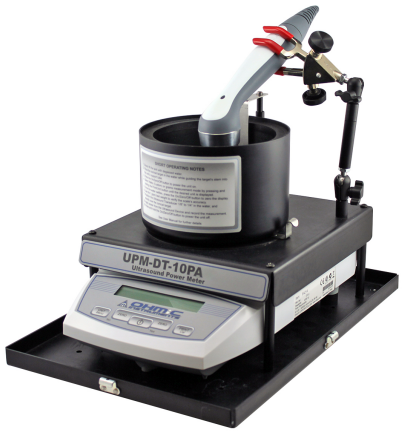
ULTRASOUND POWER METER MODEL UPM-DT-1PA & UPM-DT-10PA

Approved Electronics

USB

RS232



- **FIVE POINT CERTIFICATION (NIST TRACEABLE)**
- **HIGH RESOLUTION: 2 OR 20mW (1.5 or 15 mW in grams mode)**
- **MEASUREMENT RANGE: 0-30 WATTS**
- **FREQUENCY RANGE: .5 TO 10MHZ**
- **MEASURES TOTAL PULSED OR CONTINUOUS POWER**
- **AUTOMATIC ZEROING & STABILIZATION**
- **DIGITAL DISPLAY & RS-232 INTERFACE**
- **EQUIPPED WITH CARRYING CASE**

UPM-DT SERIES WATTMETERS VERIFIED BY NIST & FDA

OHMIC Instruments Models UPM-DT-1PA & 10PA are precision wattmeters designed to measure the power output of diagnostic and therapeutic ultrasound transducers. 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 methodand 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 or 1.0 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 0.002 watt for Model UPM-DT -1PA and 0.02 watt for Model UPM-DT-10PA. 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 mass 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/cm^2 for echo sounding, 100 mW/cm^2 for Doppler devices and 3W/cm^2 for therapeutic use. The watt density (watts/cm^2) 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.

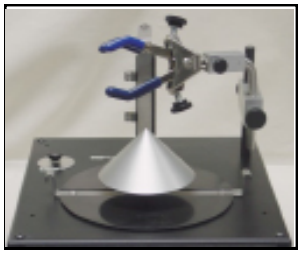
WARRANTY: All products manufactured by OHMIC Instruments are warranted to be free of defects in material and workmanship for one year after delivery. Any equipment found to be defective within this period will be repaired or replaced free of charge.

SPECIFICATIONS - UPM-DT-1PA & 10PA

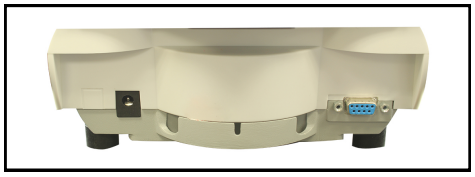
	UPM DT-1PA	UPM-DT-10PA
Power Range	0- 30 Watts	0- 30 Watts
Resolution	2 mW (1.5 mW in grams mode)	20 mW (15 mW in grams mode)
Display Sensitivity/Uncertainty	0.002 Watt	0.02 Watt
Accuracy	± 3% @10 Watts, 25°C	± 3% @10 Watts, 25°C
Zeroing Method	Automatic	Automatic
Stabilization	≤3.0 Second Integration	≤3.0 Second Integration
Maximum Transducer Size	4 1/2" Diameter	4 1/2" Diameter
Transducer Operating Frequency	.5-10MHz	.5-10MHz
Test Media	Degassed Water	Degassed Water
Computer Interface	RS-232, 600-19200 Baud	RS-232, 600-19200 Baud
Default Baud Rate	2400	2400
Power *	* 120 VAC to 12 VAC 500 mA adapter with 6 Ft. cord	* 120 VAC to 12 VAC 500 mA adapter with 6 Ft. cord
EMC	EN 61326-1, AS/NZS4251.1, AS/NZS4252.1, CAN/CSA-22.2 No. 1010-1-92, UL Std. No. 3101-1	EN 61326-1, AS/NZS4251.1, AS/NZS4252.1, CAN/CSA-22.2 No. 1010-1-92, UL Std. No. 3101-1
Electrical Safety	EN 61010-1	EN 61010-1
Size	11"H x 15" L x 10"W	11"H x 15" L x 10"W
Weight	16 Lbs Net	16 Lbs Net
Carrying Case	Black Anodized Aluminum	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 cone target and transducer positioner. (Tank not shown.)



The rear panel of the UPM-DT Series showing RS-232 and printer ports.

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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