



**SWAN<sup>®</sup>**  
**ELECTRONICS**  
A Subsidiary of Cubic Corporation

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## INSTRUCTION MANUAL

### HF PEAK READING SWR/WATT METER

### WM-2000A

#### GENERAL:

WM 2000A is especially designed for HF ham radio. Therefore, this meter measures power and SWR more accurately than wide frequency range meter on HF.

Both PEP and RMS indication.

The directional coupler has flat frequency response and is sensitive by use of current transformer and you are free from power calibration between 1.8 and 30 MHz.

#### UNDERSTANDING P.E.P.:

With an S.S.B. transmitter, the output power occurs only sporadically during voice transmission and has no direct relationship between the peak and average power, the ratio of peak to average power varies widely with voices of different characteristics.

The power contained in the signal at the maximum peak is the basic transmitter rating. It is called the "peak envelope power", P.E.P. for short. This makes the Peak Reading Wattmeter essential for S.S.B.

General power meters indicate average or RMS (root mean square) value and calibrated by using a continuous sine-wave signal which a voice-modulated signal definitely is not. Such a power meter means little in peak envelope power of S.S.B.

#### SPECIFICATIONS:

Measuring method	: Directional coupler
Impedance	: 50 ohm
Frequency range	: 1.8 - 30 MHz
Power indication	: RMS PEP
Power measuring range	: 0 - 200, 1k, 2k Watts, 3 ranges
SWR measuring range	: 1:1 - 3:1
Accuracy	: $\pm$ 7% Power + 3% SWR (bridge error)
Connector	: SO-239
Power source, PEP only	: 117V AC 4VA
Dimensions & weight	: 205 x 100 x 130 (m/m), 1.6 Kg

#### INSTALLATION:

Disconnect the antenna cable from your transmitter and connect it to the "ANTENNA" receptacle of WM-2000A.

Connect between your transmitter and "TRANSMITTER" receptacle with 50-ohm coax cable. Plug the AC cable into a 117V outlet while PEP measurement.

## OPERATION:

### POWER MEASUREMENT

1. Choose the power mode which you want to measure, then set the power mode switch to RMS or PEP.
2. Choose your convenient power range with selector switch, 200, 1k or 2k watts.
3. Activate your transmitter and read the power on the power scale.
4. This power meter is stable against load condition. However, SWR should be as close to 1:1 to get accurate power reading.

### SWR MEASUREMENT

1. For the protection of the meter movement, turn the SWR SENS knob to fully counter clockwise.
2. Set the selector switch to "FWD" and activate your transmitter. Then turn the SWR SET knob to get full scale (SET).
3. At above condition, just turn the selector switch to "REF" then read the SWR value on the SWR scale.
4. If you transmit continuous wave, you may read by any mode; RMS or PEP.

### CAUTION:

1. Make sure the cable connection is tight.
2. Do not disconnect the coax cable while transmitting.
3. When the SWR is remarkably high such as far over 3:1, reduce the power and make antenna matching then transmit with full power.
4. Power mode switch is common use with power switch so turn it to RMS while resting.

### SCHEMATIC DIAGRAM:

