PM-30UV SWR/Power Meter

INTRODUCTION

The PM-30UV can simultaneously measure and display forward power, reflected power, and SWR in the frequency range of 100 to 500 MHz. Accuracy of the readings is assured because the PM-30UV features a true shielded directional coupler. The back lit meter can also display either peak or average power readings.

There are three different types of connectors available on the PM-30UV. The PM-30UV has SO-239 connectors, the PM-30UVN has N-connectors, and the PM-30UVB has BNC connectors. These connectors are the only difference between the three different models. Throughout this manual all three models will be referred to as the PM-30UV.

SPECIFICATIONS

FREQUENCY RANGE: ..... 100 to 500 MHz
POWER RANGE: ..... 30 and 300 W Ranges
METER LAMP: ..... 12 Vdc with on/off switch
OPTIONAL ADAPTER: ..... Vectronics AC-12
DIMENSIONS: ..... 5.3"W x 5.75"D x 3.5"H
WEIGHT: ..... 1.2 lbs.
CHASSIS: ..... Alodine Plated Aluminum

FRONT PANEL CONTROLS

ON/OFF ..... Meter Lamp Switch
144 ..... 144 MHz Band Switch
220 ..... 220 MHz Band Switch
440 ..... 440 MHz Band Switch
300W/30W ..... Power Range Switch
PEAK/AVG ..... Selection Switch

REAR PANEL CONNECTIONS

RF OUTPUT ..... SO-239 connector (PM-30UV)
N-connector (PM-30UVN)
BNC connector (PM-30UVB)

RF INPUT ..... SO-239 connector (PM-30UV)
N-connector (PM-30UVN)
BNC connector (PM-30UVB)

POWER..... 2.5mm coaxial type jack

INSTALLATION

1. Connect the RF INPUT to the transmitter using the appropriate connectors. If using an antenna tuner, the PM-30UV should be placed between the transmitter and antenna tuner.

2. Connect the RF OUTPUT to the antenna using the appropriate connector. If using an antenna tuner, the RF OUTPUT is connected to the antenna tuner input.

   Note: Vectronics recommends using high quality cable for all connections.

3. If a lighted meter is desired, a 9-12Vdc power supply, such as the Vectronics AC-12, must be connected to the jack labeled POWER on the back of the unit. This is a 2.5mm coaxial type jack with the center positive.

OPERATION

1. Set the PM-30UV to the proper band by pressing the appropriate switch (144/220/440). To more accurately display RF power in the amateur bands that lie in the 100-500 MHz range, is the reason 144, 220, and 440 option switches are provided on the front panel. This wattmeter is, however, usable at frequencies other than the 3 front panel option ranges. See the CALIBRATION section for more information.

2. Set the desired power range by using the push-button switch on the front panel labeled `POWER 300W/30W`. With the switch in the out position, the `30W` range is selected. When the switch is locked in, the `300W` range is selected.

3. The Peak Reading feature may be switch on/off by using the push-button switch labeled `POWER PEAK/AVG`. Peak reading is activated when the switch is locked in.

4. SWR is indicated at the intersection of the two meter pointers. While transmitting, read the SWR from the red SWR line nearest the intersecting point.

There is a fair amount of dissipation in the coupler (8W) at 300 watts on any band. Operation at this power level must be held to a short time (typically 1-2 minutes). If you see the meter register changes in reverse power, this indicates that the special diodes are changing in forward drop and that the high power should be removed. After a reasonable amount of time, the wattmeter can be used again.

TECHNICAL ASSISTANCE

If you have any problem with this unit first check the appropriate section of this manual. If the manual does not reference your problem or your problem is not solved by reading the manual you may call VECTRONICS at 601-323-5800. You will be best helped if you have your unit, manual and all information on your station handy so you can answer any questions the technicians may ask.

You can also send questions by mail to VECTRONICS, 1007 HWY 25 South, Starkville, MS 39759 or by FAX to 601-323-6551. Send a complete description of your problem, an explanation of exactly how you are using your unit, and a complete description of your station.

CALIBRATION

This wattmeter has an elaborate stripline design for the RF coupler that does not require field calibration. However, forward reading can be altered by adjusting the trimpots marked in Figure 1. A calibrated source must be used to adjust the meter using the internal trimpots.

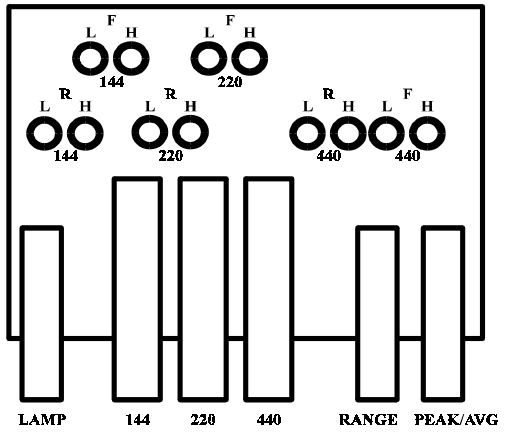

FIGURE 1

NOTES

PM-30UV PARTS LIST

PM-30UV **Meter Board**		
P/N	**Description**	**Designation**
100-4270-1	Resistor, 27K ohm, 1/4 W	R14
100-4100	Resistor, 10K ohm, 1/4 W	R15, R16, R17
133-5100	Pot. 100K PCB Horiz. Mount	R1-R4, R6-12
162-5500-2	Pot. 500K, PCB, Horiz. Mount	R5
231-2470	Capacitor, 47µF, 25Q, Elect.	C1, C2
200-4100-2B	Capacitor, Ceramic, .01µF, 25V	C3, C4, C5
504-4500	Switch, Push Button, 2P2P, black	SW1, SW2
504-4400	Switch, Push Button, 2P2P, red	SW3
504-1700	Switch-E, 3 Section Inter Lock	SW4, SW5, SW6

PM-30UV **Coupler Board**		
P/N	**Description**	**Designation**
1005-2510	Resistor, 51 ohm, 1/4W 1%	R1, R2
200-3100	Capacitor, .001µF, 50V Disc Ceramic	C1, C2
401-4100	Inductor, 1µH	L1, L2
302-5711	Diode, Schottky, Motorola	D1, D2
725-1007	Clip, Tuning Spring, Silver Flashed	C3, C4, C5
610-2600	Connector, Chassis, SO-239	**PM-30UV**
610-2504	Connector, Chassis, N-Type	**PM-30UVN**
610-1314	Connector, Chassis, BNC	**PM-30UVB**
610-2900	Jack, DC Coaxial	Next to PCB

PM-30UV SCHEMATIC