

MFJ-817 144/440 MHz SWR/WATTMETER

The MFJ-817 144/440 MHz PEAK READING SWR/WATTMETER utilizes a crossneedle meter so that the peak or average power forward and the SWR can be read simultaneously. This unit is designed to operate at the 144 and 440 MHz bands. Power readings are made on two different scales. The low scale reads from 0 to 20 watts forward power and from 0 to 5 watts reflected power and 0 to 50 watts forward power and 0 to 50 watts reflected power. SWR is read from 1:1 to 5:1.

INSTALLATION

1. Connect the coax connector labeled TRANSMITTER to the transmitter with RG-8 or RG-58/U cable. Use PL-259 male connectors.
2. Connect the coax connector labeled ANTENNA to the antenna with RG-58/U or RG-8/U cable. Use PL-259 male connectors.
3. If the lighted meter is desired, a 12Vdc power supply such as the MFJ-1312B must be connected. Use a standard 2.1mm coaxial plug with the center conductor positive (+) and the sleeve negative (-). The METER LAMP ON/OFF switch will light the meter lamp when pushed in.

FORWARD AND REFLECTED POWER

1. Set the desired power range by using the switch of the front panel labeled METER HIGH/LOW. The full-scale readings on the HIGH range are 200 watts forward and 50 watts reflected power. Full-scale readings on LOW are 20 watts forward and 5 watts reflected.
2. The peak reading may be switched on/off by using the push button on the front panel labeled METER AVG/PEAK.

SWR MEASUREMENT

SWR is indicated by the crossing point of the two meter pointers. While transmitting, read the SWR from the SWR line nearest the crossing point.

Note: NO SWR sensitivity adjustment is needed at any range.

CALIBRATION

The MFJ-817 has been calibrated at the factory. If it should ever need to be recalibrated, carefully follow the procedure on the following page.

EQUIPMENT NEEDED

1. Transmitter capable of supplying enough power to obtain 1/2 to full scale reading at 144 MHz.
2. Transmitter capable of supplying enough power to obtain 1/2 to full scale reading at 440 MHz.
3. 50 Ohm dummy load capable of operating at 144 MHz & 440 MHz, and handling the full power that the transmitter can put out and having better than a 1.15:1 SWR.
4. A power meter of known accuracy. The calibration will only be as good as this reference meter.
5. 50 Ohm cables capable of handling the power. RG-58/U or RG-8/U is recommended. DO NOT USE RG-59 OR RG-11.

METER CALIBRATION- refer to the diagrams for the trimpot and trimmer locations.

1. Remove the top of the MFJ-817.

FOWARD POWER

2. Connect the equipment as shown in the TEST SETUP diagram using the 144 MHz transmitter. Set the METER HIGH/LOW push button for the low scale. Transmit about 10 watts as indicated on the reference meter. Adjust trimpot #2 to set 10 watts on forward power scale.
3. Next set the push button for the HIGH power scale. Transmit about 100 watts as indicated on the reference meter. Adjust trimpot #1 to set 100 watts on the forward scale.
4. Connect the test setup to the 440 MHz transmitter. Set the push button for the Repeat procedures 3 and 4 until the meter has the correct reading on the both bands.
5. Repeat procedures 3 and 4 until the meter has the correct reading on both bands.

REFLECTED POWER

6. Connect the equipment as shown in TEST SETUP diagram using the 144 MHz transmitter. Swap the antenna and transmitter connectors on the MFJ-817 such that the dummy load is connected to the TRANSMITTER connection on the MFJ-817 and the feedline from the reference meter is connected to the ANTENNA connector on the MFJ-817. Set the METER HIGH/LOW push button for the low scale. Transmit about 2 watts as indicated on the reference meter. Adjust trimpot #4 to set 2 watts on reflected power scale.
7. Next set the push button for HIGH power scale. Transmit about 20 watts as indicated on the reference meter. Adjust trimpot #3 to set 20 watts on the reflected scale.
8. Connect the test setup to the 440 MHz transmitter. Set the push button for the HIGH range. Transmit about 20 watts as indicated on reference meter. Adjust trimmer #2 to set 20 watts on the reflected scale.
9. Repeat procedures 7 and 8 until the meter has the correct reading on both bands.