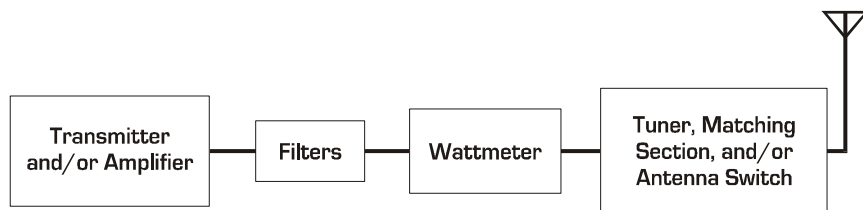


MFJ-860 HF SWR/Wattmeter

The MFJ-860 HF SWR/Wattmeter measures forward and reflected power and indicates SWR for the ham bands from 160 meters to 6 meters. The MFJ-860 has 2 power scales which are selected with the front panel push button switch. The low power scale reads from 0-30 watts forward and 0-6 watts reflected. The high power scale reads from 0-300 watts forward and 0-60 watts reflected. SWR is indicated from 1:1 to ∞ .

CONNECTIONS

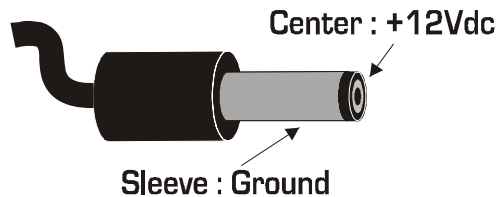
Connect your transmitter to the connector labeled "TRANSMITTER" and your antenna to the connector labeled "ANTENNA". It is important that you use good quality coax and properly installed connectors.



If you want to measure the power output capability of a transmitter/amplifier you should connect a quality dummy load (50 ohms) to the antenna jack of the MFJ-860.

Caution: Many HF dummy loads exhibit SWR especially on 15 and 10 meters.

The MFJ-860 has an illuminated meter. To provide power for the meter lamp, a 12 Vdc supply such as the MFJ-1312B should be used. Use a standard 2.1 mm coaxial plug with the center conductor positive and the sleeve ground.



USING THE MFJ-860

To measure forward and reflected power press the selector switch to the correct power setting. Transmit a steady carrier and read the power from the meter. Each unmarked picket on the scale is an even division between the adjacent marked values. SWR is read from the SWR curve closest to where the meter needles cross.

If a more exact reading of SWR is needed you may use the equation for SWR. Measure the forward and reflected power then put the values into the following equation.

$$SWR = \left(1 + \sqrt{\frac{P_r}{P_f}}\right) / \left(1 - \sqrt{\frac{P_r}{P_f}}\right)$$

P_r = Reflected Power

P_f = Forward Power

PARTS LIST

| Designator | P/N | Description |
|------------|----------|---|
| R1, R2 | 100-0003 | Resistor, 1/4 Watt, 5%, Film, 100 Ω |
| R3, R6 | 133-4100 | Resistor, Trimpot, Sub. Horz., 10 k Ω |
| R4, R5 | 133-5100 | Resistor, Trimpot, Sub. Horz., 100 k Ω |
| R7 | 101-1680 | Resistor, 1/2 Watt, 5%, Film, 68 Ω |
| R8 | 100-3330 | Resistor, 1/4 Watt, 5%, Film, 3.3 k Ω |
| C1-C4 | 200-0004 | Capacitor, Disc Ceramic, 25/50v, 20%, .01 uF |
| C5 | 200-0010 | Capacitor, Disc Ceramic, 50V, 20%, 220 pF |
| C6 | 204-0001 | LLT, Capacitor, Trimmer, 250V, 3-10 pF |
| L1 | 401-0037 | Inductor, Molded, .3", 10%, brn-blk-gld, 1.0uH |
| D1-D2 | 300-2835 | Diode, Schottky, HP2835 |
| for M1 | 715-6186 | Spacer, Aluminum, Hex, 4-40-1/4"L, .25" Od, Plain |
| for M1 | 710-6050 | Washer, Metal, Lock Washer, #6 Id, Int. Tooth |
| for M1 | 700-2221 | Screw, Machine, Pan, Phillips, 4-40-1/4", St, BK |
| for M1 | 736-0100 | Bracket, Tab, Meter, |
| J1, J2 | 610-2005 | Connector, UHF, 4-Hole Mount, SO-239 |
| J3 | 601-6121 | Jack, Coaxial, 2.1mm, Ch. Mt., Closed, Mono |
| M1a&M1b | 400-3084 | Meter, Cross Needles, 200uA, 1200 Ohm, 300W |

SCHEMATIC

