



SWR-3 SWR/POWER METER INSTALLATION MANUAL

POWER METER AND STANDING WAVE BRIDGE

The SWR-3 is a handy, compact device for the amateur radio station in checking transceivers operator. For SWR measurements, Model SWR-3 uses the bridge method of comparing the voltage supplied to and reflected from the antenna systems. The operation can accurately and quickly match the antenna to the transmitter. For RF power measurement, the average voltage from a carrier detector is measured. Continuous monitoring of

the transmitter output is possible by having the instrument in the circuit at all times. The indicator can also be used as a field strength meter by disconnecting it from the feed line and attaching the small pickup antenna, included.

SPECIFICATIONS

SWR:	1:1 to 1:3
RF POWER	0-10 watts and 0-100 watts
ACCURACY	SWR 5% RF POWER 10%
IMPEDANCE	52 ohms
FREQUENCY RANGE	1.7 MHz to 150 MHz
INDICATOR	200 DC Micro-ammeter
ANTENNA	5 inches antenna
DIMENSION	6" x 2" x 2"
WEIGHT	14 oz.

SWR Measurement

1. Turn the transmitter off and disconnect the antenna coaxial cable at the output.
2. Connect the SWR-3 "TRANS" connector to the transmitter output, and "ANT" to antenna connector. A short cable equipped with male connectors on both ends will be required between the transmitter and the meter.
3. Set the slide switch to "SWR" and "FWD". Rotate the "SET & FS ADJ" counterclockwise to near minimum position.
4. Turn the transmitter on, rotate the "SET & FS ADJ" for full scale, "SET" position on meter.
5. Next, set the slide switch FWD/REF to "REF" and read the meter scale. The meter will give the SWR reading directly.
6. A 1:1 ratio is the ideal match. Adjustments on the antenna system should be made so that the SWR is as low as possible. A SWR of 2.0 is considered satisfactory, taking into account the line losses and slight mismatching. The operator is referred to the numerous articles in radio magazines and books dealing with various proper matching methods of different types of antennas. NEVER attempt to adjust the set to the antenna.
7. The power required for the SWR bridge operation is dependent on the frequency; about 25 watts at 3.5 MHz, 15 watts at 7 MHz, and proportionately lower power at higher frequencies. If the transmitter power is not sufficient and a full meter swing cannot be achieved, adjust the antenna system for the lowest possible swing at the "REF" position of the slide switch.

RF POWER

1. Connect the SWR-3 "TRANS" connector to the transmitter output, and "ANT" to antenna connector.
2. Set the slide switch (SWR, PWR) at POWER position, and set the range slide switch (FWD, REF) to either 10 watts or 100 watts position, whichever is suitable.
3. When the transmitter switch is on, the meter needle will deflect. Read the amount of deflection on the top scale. If the range switch had been set to the 100 watt range, the value is multiplied by 10.
4. For accurate power reading the SWR-3 should be used in circuits having SWR value of up to 1.5. The meter accurately will decrease if the SWR value exceeds 1.5.
5. Always have the meter switched off when removing this meter from the circuit.
6. NEVER disconnect the "ANT" connector when transmitting. The abnormal voltage generated may damage the transmitter.

IN CIRCUIT MONITORING

The SWR-3 can be left continuously in the circuit for monitoring transmitter output up to 100 watts. Set the slide switch to "SWR" and "FWD". Adjust the knob for a meter swing to about midscale with the transmitter on. Any abnormal variation in the transmitting system will be detected quickly. The instrument consumes almost no power for this purpose.

FIELD STRENGTH INDICATIONS

This instrument is designed so that comparative RF field strength can be determined.

A pair of diodes has been inserted in the circuit to rectify the RF energy picked up by the small antenna. Remove the instrument from the transmitter output circuit and restore the former transmitter antenna connections.

1. Set the slide switch to "SWR" and "FWD"
2. Fasten the bar antenna to the stud on the side of the case.
3. Bring the SWR-3 in the vicinity of the transmitter of antenna system with the transmitter in operation. Be careful that the pickup antenna does not come in contact with any metallic portion of the transmitter or antenna.
4. The adjusting knob is rotated to obtain a convenient reading on the meter.
5. After the aforementioned steps have been taken, any adjustments performed on the transmitter or antenna will be reflected by an increase or decrease in the meter reading.

