



INSTRUCTION MANUAL

CROSS NEEDLE SWR & POWER METER

MODEL **CN-801** (H) TYPE. (V) TYPE. (S) TYPE.

The CN-801 Series is high quality instrument with unique features which make tedious measurement of SWR and Power during antenna tests, matching and tuning of transmitters a very easy task.

SWR and Power indicators are installed in one meter unit. One scale will indicate Forward Power.

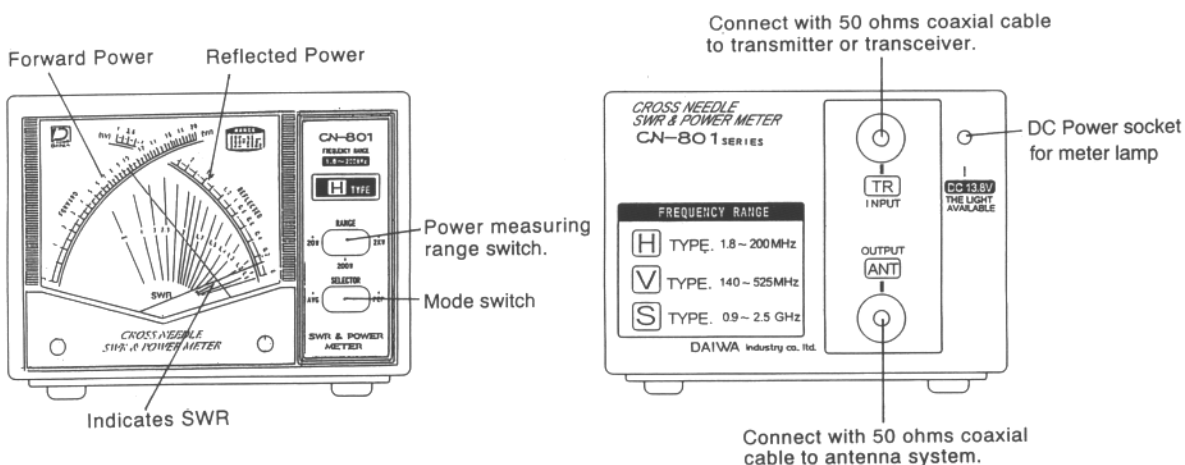
Another scale Reflected Power and SWR is indicated at the crossing point of the 2 needles. This unique feature makes it possible to read Forward Power, Reflected Power and SWR all at the same time.

SPECIFICATIONS

	(H) TYPE	(V) TYPE	(S) TYPE	
Frequency	1.8 - 200MHz	140 - 525MHz	900 - 2500MHz	
Power range : Forward	20 / 200 / 2KW	20 / 200W	2 / 20W	
Tolerance	± 10% at full scale			
SWR measurement	1 : 1 - 1 : 00			
SWR detection sensitivity	5W min		0.5W	
Input / Output impedance	50 ohms			
Input / Output connectors	M type (S0 -239)		N type	
Dimensions and weight	180W × 120H × 130D mm , Approx.			1 kg

※ Add 15% of full scale at 160-200MHz. Power Rating 1kw(144MHz).

CONTROLS AND FUNCTIONS



■ OPERATION

1. Use only 50 ohms coaxial line for connections. This will maintain the accuracy of the meter.
2. For accurate power measurements, use 50 ohms pure resistance dummy load .(Fig.1)
3. Effective Radiated Power & SWR .
 - Select the Mode switch to 「AVG」 position. To measure effective radiated power, subtract Reflected power from Forward Power. (Apparent loss is only produced by impedance mismatch and does not include cable losses.)

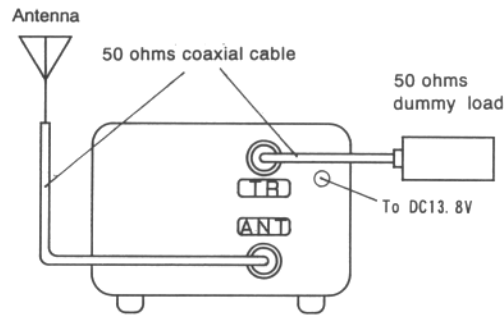


Fig. 1

See Figure 2. The meter indicates Forward power 10W and Reflected power 0.4W. At the crossing point of the 2 needles the indication is SWR1.5.

- Monitoring P.E.P power
- Turn Mode switch to 「P.E.P」 position
 When the transmitter is operated and the switch is in the 「PEP」 position the meter needle Monitor PEP of the SSB signal.
 This function can not hold peak envelope power.

Mathematical verification

$$SWR = \frac{\sqrt{P_f} + \sqrt{P_r}}{\sqrt{P_f} - \sqrt{P_r}} = \frac{\sqrt{10} + \sqrt{0.4}}{\sqrt{10} - \sqrt{0.4}} = 1.5$$

P_f : Forward Power P_r : Reflected Power

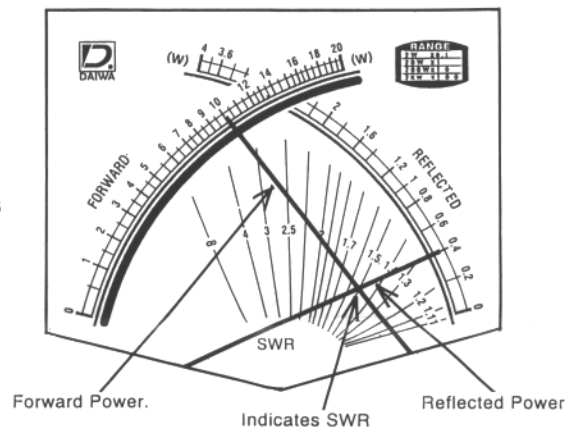


Fig.2

■ CAUTION

1. As the meter movements has high sensitivity, it should be handled with utmost attention. Prevent mechanical shock and vibration.
2. Measuring power with a poorly matched antenna or disconnecting the out put of the bridge while operating may damage the meter.
3. In low humidity conditions, the needles may stop on its way or may behave as though it caught on the meter face due to static electricity. In such case, apply commercially available static cream or spray for plastics or clothes on the meter face. The needles return to the original position.
4. Use only 50 ohms coaxial cable for connections. This will maintain the accuracy of the meter.

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