

HOBBY ELECTRONICS

INSTRUCTION MANUAL

SWR & POWER METER

**MODEL CN-710
CN-720**



DAIWA INDUSTRY CO., LTD.

The CN-710/CN-720 is a high quality instrument with a unique feature which makes tedious measurements of SWR and power during antenna tests, matching and tuning of transmitters a breeze.

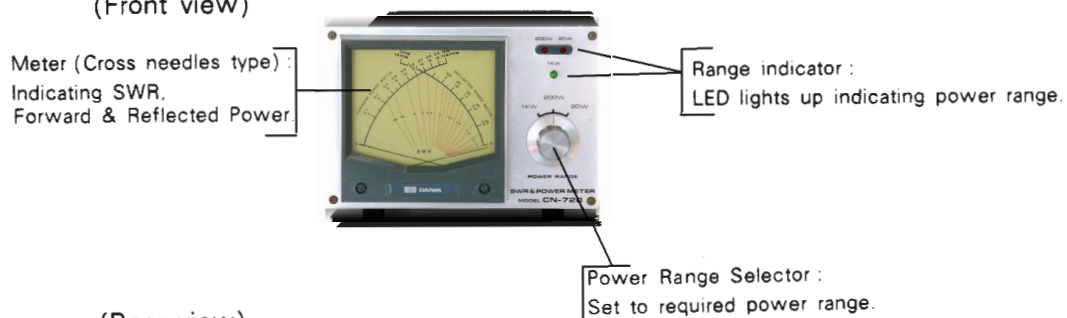
SWR and power indicators are installed in one meter unit. One scale will indicate Forward Power, another scale Reflected Power and SWR is indicated at the crossing point of the 2 needles. This unique feature makes it possible to read Forward Power, Reflected Power and SWR all at the same time.

SPECIFICATIONS :

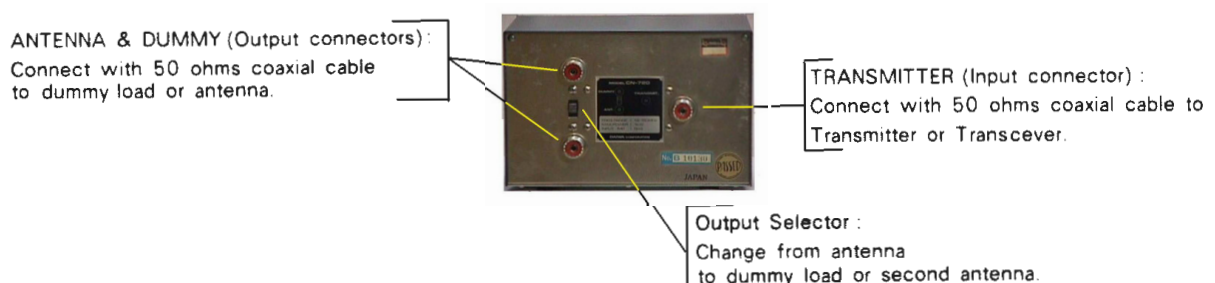
	CN-710	CN-720
Frequency :	1.8—150 MHz	1.8—150 MHz
Input/output impedance :	50 ohms	50 ohms
Ratio of Forward vs. Reflected power :	5 : 1	5 : 1
Power range :	Forward 20W/200W Reflected 4W/40W	20W/200W/1kW 4W/40W/200W
Tolerance :	±10% at full scale	±10% at full scale
SWR measurement :	1 : 1 — 1 : ∞	1 : 1 — 1 : ∞
SWR detection sensitivity :	5W min.	5W min.
Input/output connectors :	SO-239	SO-239
Dimensions :	180W×120H×130D mm	180W×120H×130D mm

NOMENCLATURE :

(Front view)

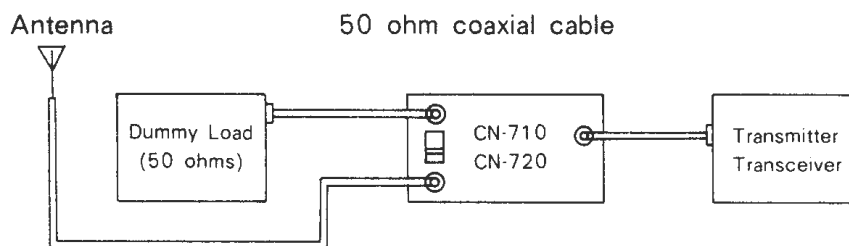


(Rear view)

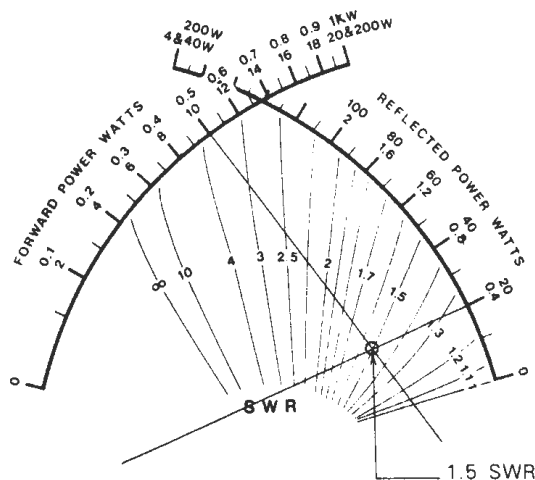


OPERATION :

- 1) Do not use CN-710/CN-720 beyond frequency range of 1.8—150 MHz. Insertion loss will increase beyond these frequencies and accuracy of the meter will be impaired.
- 2) Use only 50 ohm coax line for connections. This will maintain the accuracy of the meter.
- 3) For accurate power measurements, use 50 ohm pure resistance dummy load.
- 4) Set slide switch on rear of instrument to desired operating mode.



- 5) "Forward Power Watts" scale indicates Forward Power.
- 6) "Reflected Power Watts" scale indicates Reflected Power.
- 7) Effective Radiated Power.
To measure effective radiated power, subtract Reflected power from Forward Power. (Apparent loss is only produced by impedance mismatch and dose not include cable losses.)
- 8) SWR.



This scale indicates
200W power range

Figure 1. The CN-720 meter scale.

See figure 1. The meter indicates Forward Power 100W and Reflected Power 4W.
At the crossing point of the two meter needles the indication is SWR 1.5.

Mathematical verification :

$$SWR = \frac{\sqrt{P_f} + \sqrt{P_r}}{\sqrt{P_f} - \sqrt{P_r}} \quad \begin{array}{l} P_f : \text{Forward Power} \\ P_r : \text{Reflected Power} \end{array}$$

$$SWR = \frac{\sqrt{100} + \sqrt{4}}{\sqrt{100} - \sqrt{4}} = \frac{10+2}{10-2} = \frac{12}{8} = 1.5$$

9) Range indicators.

LEDs are located on the front panel indicating the power range the instrument is set for. Minimum power required to activate the light is a half the maximum power of each range.

CAUTION :

- * The meter movements are highly sensitive. Prevent mechanical shock and vibration.
- * When not in use, set the power selector to 1kW position.
- * Measuring power with a poorly matched antenna or disconnecting the output of the bridge while operating may damage the meter.

