

Mathematical verification:

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

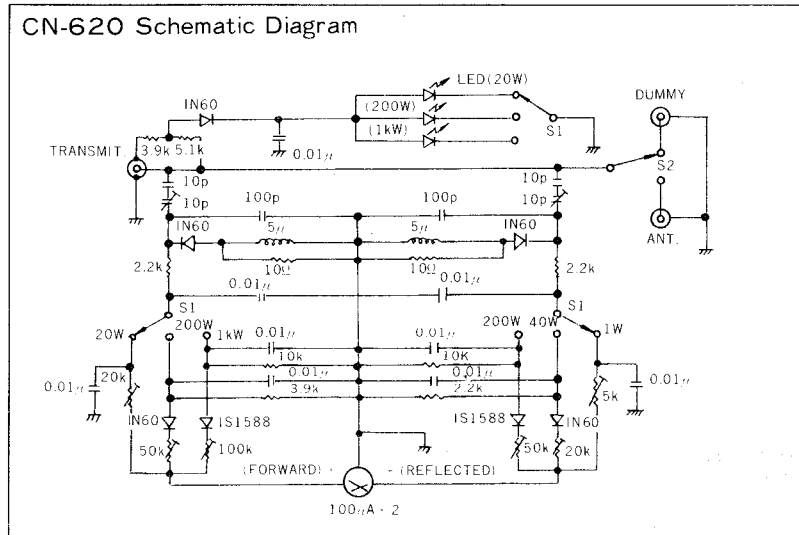
$$SWR = \frac{\sqrt{100} + \sqrt{4}}{\sqrt{100} - \sqrt{4}} = \frac{10 + 2}{10 - 2} = \frac{12}{8} = 1.5$$

- 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.

CN-620 Schematic Diagram

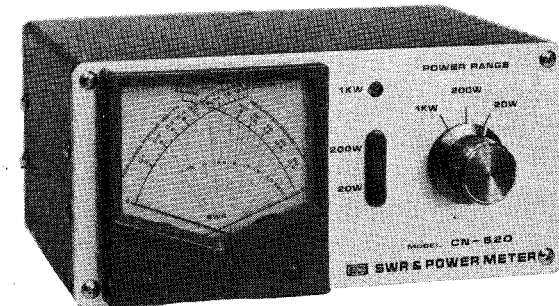


INSTRUCTION MANUAL

SWR & POWER METER

MODEL CN-610

MODEL CN-620



DAIWA CORPORATION

The CN-610/CN-620 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.

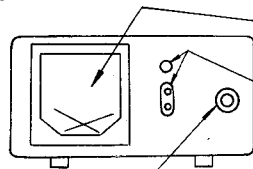
SWR and power indicators are installed in one meter unit. One scale will indicate Forward Power. another scale Reflected Power and SWR is indicated at the crossing point of the 2 needles. This unique feature makes it possible to read Forward Power, Reflected Power and SWR all at the same time.

SPECIFICATIONS :

	CN-610	CN-620
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	20W/200W/1kW
Reflected	4W/40W	4W/40W/200W
INPUT RATING POWER		
HF BAND	200W CW (400W PEP)	1kW CW (2kW PEP)
50 MHz BAND	" (")	500W CW (1kW PEP)
150 MHz BAND	" (")	250W CW (500W PEP)
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:	165W×75H×97D ^{mm}	165W×75H×97D ^{mm}

NOMENCLATURE :

(Front view)

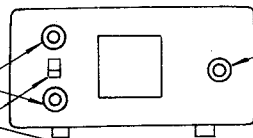


Meter (Cross needles type):
Indicating SWR, Forward & Reflected Power.

Range indicator:
LED lights up indicating power range.

Power Range Selector:
Set to required power range.

(Rear view)



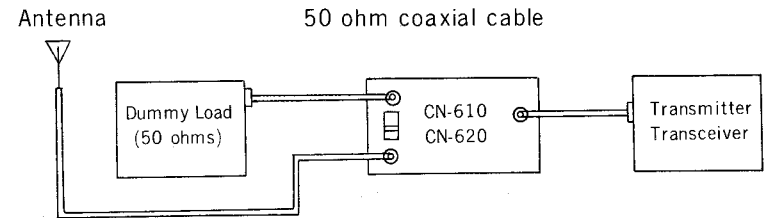
TRANSMITTER (Input connector):
Connect with 50 ohms coaxial cable to
Transmitter or Transceiver.

ANTENNA & DUMMY (Output connectors):
Connect with 50 ohms coaxial cable to dummy load or antenna.

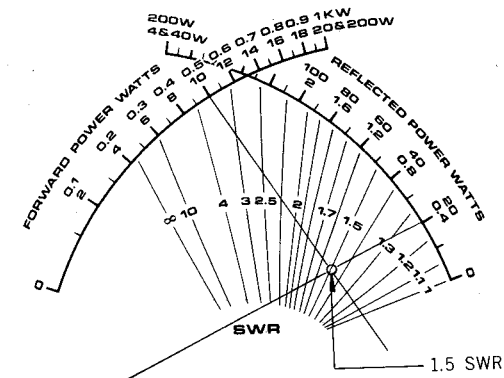
Output Selector:
Change from antenna to dummy load or second antenna.

OPERATION :

- 1) Do not use CN-610/CN-620 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-620 meter scale.

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