

OPERATING INSTRUCTIONS
for
PDC 550/PDC 600

1. GENERAL DESCRIPTION

The RF POWER SCANNER Model PDC 550/600 is designed for the CB and two-way communication operator to check out the performance, monitoring and in-line functions of their transceivers. The PDC 550/600 is a very sensitive instrument and will measure transmitter output power, modulation percentage up to 100%, over-modulation to +3db and Standing Wave Ratio (SWR). The PDC 550/600 will provide:

1. Up to 1000 watts Output RF Power Reading.
2. Frequency Range Capability to 220 Mhz.
3. ~~Modulation level to 100% and over-modulation to +3db.~~
4. Standing Wave Ratio (SWR).
5. Factory Calibrated at 27 Mhz.

The RF POWER SCANNER has three separate meters, namely, POWER, MODULATION and SWR, and it will provide readings simultaneously during the transmit mode of operation.

Both the PDC 550 and the PDC 600 are beautifully packaged and can be used on desk tops or placed on top of the transceiver. In the case of mobile application, the PDC 550 can be mounted under the dash of a vehicle by means of two brackets. Only two coax connections are required for the antenna and transmitter. Quality, accuracy, reliability and freedom from any complicated connecting cables make the RF POWER SCANNER a desirable piece of test equipment for CB'ers.

RF POWER FUNCTION

RF Output power is indicated directly on the power meter for 0-10 watts (lower scale), 0-100 watts (middle scale) and 0-1000 watts (upper scale).

MODULATION FUNCTION

Modulation level is indicated directly on the modulation meter. This allows full time monitoring of modulation during transmission. The operator can make a compensation of his voice level by making adjustments in the microphone position or modulation boosters, if employed.

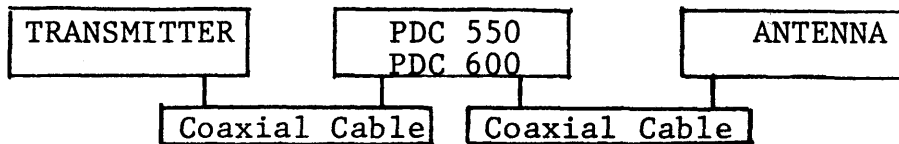
SWR FUNCTION

The Standing Wave Ratio is indicated on the SWR meter and allows continuous monitoring of forward and reflected power ratios. This is a must for CB'ers to determine how well their antenna is matched to their transmitter. Antenna mismatch may occur due to weather conditions, poor contracts of antenna sections, oxidation, cable leakage, etc.

2. SPECIFICATIONS

1. Impedance: Fifty (50) ohms.
2. Frequency Range: Calibrated at 27 Mhz.
3. Power: 0-10 watts, 0-100 watts, 0-1000 watts.
4. Modulation: To 100%, over-modulation to +3db.
5. SWR: 1:1 to 3:1.

3. CONNECTION OF INSTRUMENT



Connection from transmitter to PDC 550/600 and from PDC 550/600 to antenna as illustrated above. Use fifty (50) ohm coaxial cable, RG8U or RG58U.

4. HOW TO USE THE PDC 550/600

Make the following settings of the controls on the instrument panel before the antenna and transmitter connections are made.

1. Set SWR function slide switch to FWD.
2. Rotate SWR control (on left) counter clockwise to "0".
3. Rotate MODULATION control (on right) counter clockwise to "0".
4. Set MODULATION slide switch to the SET position.
5. Set POWER slide switch to the 1000 position.

Now connect your transmitter to the terminal on the back panel of the PDC 500/600 marked "TRANSMITTER". In a similar manner connect the antenna to the terminal marked "ANTENNA".

5. SWR OPERATION

The ratio of maximum current to minimum current along a line is called Standing Wave Ratio. The same ratio holds for maximum voltage and minimum voltage.

The Standing Wave Ratio is a measure of mismatch between the load and the transmission line. And is equal to 'one' when the line is perfectly matched. When the line is terminated in a purely resistive load, the Standing Wave Ratio is:

$$SWR = \frac{Z_r}{Z_o} = \frac{Z_o}{Z_r}$$

- Where SWR = Standing Wave Ratio
Zr = Impedance of load (must be purely resistive).
Zo = Characteristic impedance of line.

EXAMPLE: A line having a characteristic impedance of 52 ohms is terminated in a resistive load of 40 ohms. The SWR is:

$$\text{SWR} = \frac{Z_o}{Z_r} = \frac{52}{40} = 1.3 \text{ to } 1$$

The higher the SWR, the greater the mismatch between the Line and the Load (antenna). The power loss in the line increases with the SWR. The output impedance of the power source must be equal to line impedance for maximum power transfer to the load (antenna). However, antenna mismatch may occur due to the weather conditions, poor contacts of antenna connections, oxidation, cable leakage, etc. Standing Wave Ratio is read on the SWR scale. It allows the user to monitor the ratio between forward and reflected power.

1. Key your microphone (transmit mode) and rotate SWR control clockwise until SWR meter movement swings to the SET position.

2. Release the microphone switch and set the SWR slide switch to the REF position. Key your microphone again and read the meter top scale. This is your SWR value.

6. POWER OPERATIONS

<u>If your transmitter's maximum power output is:</u>	<u>Set the power slide switch to:</u>
10 watts or less	10
100 watts or less	100
1000 watts or less	1000

CAUTION: DO NOT AT ANY TIME SWITCH TO A LOWER SCALE SETTING THAN THAT OF YOUR TRANSMITTER MAXIMUM POWER OUTPUT RATING! You may damage the power meter. Always use the maximum power setting scale of the power slide switch first to determine the correct setting and then switch to lower scales as required.

The power indicated on the power meter is the actual power being transmitted, read in watts. Note, however, that 0-10 watts will be read on the lower scale of the power meter while 0-100 watts and 0-1000 watts will be read on the upper scale of the power meter.

7. MODULATION OPERATION

1. Key your microphone and rotate the modulation control (on the right) clockwise. Adjust the Modulation to SET position.

2. Set the Modulation slide switch to MOD. The meter will show approximately a "0" reading on the lower scale and when you begin to talk into the microphone, it will indicate the modulation level. Ideal modulation level should read 100%. Higher than 100% modulation results in modulation distortion (voice distortion) and is defined as over-modulation. Lower than 100% modulation results in lower power and consequently lower audio transmission. Desired percent in voice modulation level can be attained by adjusting the microphone position or employing the modulation boosters.

Modulation level is indicated directly on the modulation scale and allows full time monitoring of modulation during transmission.

IMPORTANT-For Citizen Band Usage (27 MHz)

For maximum accuracy when using the power scanner in a line with a high SWR (1.5), it is recommended that there be 3 or 9 feet of RG-58/u cable between the power scanner and the antenna. Other acceptable lengths may be calculated using the following formula:

$$L=3'+n(6''), n=2,3,4,\dots$$

L = Cable Length In Feet

GENERAL WARRANTY POLICY

We warrant each new product to be free from defects in material and workmanship under normal use and service for a period of ninety days after delivery to the ultimate user and will repair free of charge or replace at no charge, should it become defective and which our examination shall disclose to be defective under warranty.

This warranty shall not apply to any product which has been subject to misuse, neglect, accident, incorrect wiring not of our own installation, or to use in violation of instructions furnished by us, nor extended to units which have been repaired or altered outside of our factory. This warranty does not cover any accessories used in connection with the product.

SHIPPING INSTRUCTIONS

If the unit is to be returned for adjustment or service, attach a tag to the unit bearing your name and complete address including the zip code and a brief description of the difficulties encountered.

Wrap the unit in heavy paper before placing into the carton which should be large enough to permit the use of at least three inches of paper or excelsior between all sides of the unit and the carton. Mark "Fragile" on the outside of the carton and clearly address it as follows:

PARA DYNAMICS CORPORATION
14501 North 73rd Street
Scottsdale, Arizona 85260