Bird Model 4044 RF Power Sensor

The Bird model 4044 RF Power Sensor is intended for applications requiring high performance radio frequency power measurement at a competitive price. The sensor may be used in any environment where the standing wave characteristics of the transmission line are well controlled (VSWR < 1.2), including the monitoring of input and termination ports of isolators, or as a means of determining the power dissipated in a termination load. The non-directional RF coupling scheme provides for broadband performance (150 MHz to 1.5 GHz) in terms of reflection and insertion characteristics.

Power measurement approaches using directional couplers, connected to a single receiver using interconnecting coaxial cables have the disadvantage of poor accuracy, due in large part to the inability of the system to account for the many sources of uncertainty associated with this approach. This poor measurement accuracy affects not only the ability of these systems to resolve channel power measurements, but will also degrade the measurement of antenna and feeder system VSWR or return loss measurements, as well as any alarm capability associated with these measurements. Typical RF power measurement uncertainty in systems using the remote coupler technique may approach +/-1.5 dB (+/-40%). By way of contrast, the Bird model 4044 is calibrated as a system, using precision NIST traceable calibration standards, and provides a core power accuracy of +/-5% of reading (+/-0.21 dB).

The Model 4044 RF Power Sensor is designed to be used in conjunction with the Bird Model 3141 Channel Power Monitor. When used with the Model 3141, as well as the appropriate directional output sensor, this system provides comprehensive information with regard to the transmitter / combiner system, including combiner input power by channel, composite output power, and antenna / feeder VSWR or return loss. In addition, all of this information is available remotely with Ethernet connectivity, as well as providing notification and alarm capability related to various system parameters.

Following are some details with regard to this new power sensor:

- **Maximum Power:** 100W average
- **Detector Type:** True-RMS Responding, regardless of modulation format used.
- **Accuracy:** +/- 5% of reading
- **Frequency Range:** 150 -175 MHz, 380 – 450 MHz, 700 -950 MHz
- **Dynamic Range:** 1W to 100W (20 dB)
- **Insertion Loss:** < 0.1 dB
- **Insertion VSWR:** < 1.06
- **Intermodulation Distortion:** < 140 dBc

- **Instrument Interface:** 0-4VDC via RJ-25 Connector
- **Connectors:** Type N Male – Female
- **Power Requirements:** 9-24 VDC, 25 mA max.