

MODEL 5000

DIGITAL POWER METER

MODEL 5010

DIGITAL POWER SENSOR

DIGITAL DISPLAY & ANALOG RF SYSTEMS



BIRD

THE "NEW" INDUSTRY STANDARD HAND-HELD RF POWER METER

EASY TO OPERATE & FIELD READY

VERSATILITY TO HANDLE ANY JOB

The **Model 5000** operates over a broader frequency range than any Bird meter produced to date, covering 2 MHz to 3600 MHz (based upon element selection*). Coupled with the ability to measure True Average Power from 1 to 1000 Watts, the **Model 5000** handles Cellular, PCS, AMPS, CDMA, GSM, TDMA, ISM, UMTS, 3G Wireless, WLL, Paging, Conventional/Trunked Radio, Aviation, Military, and Analog or Digital Audio and Television Broadcast.

READINGS ANY WAY YOU NEED THEM

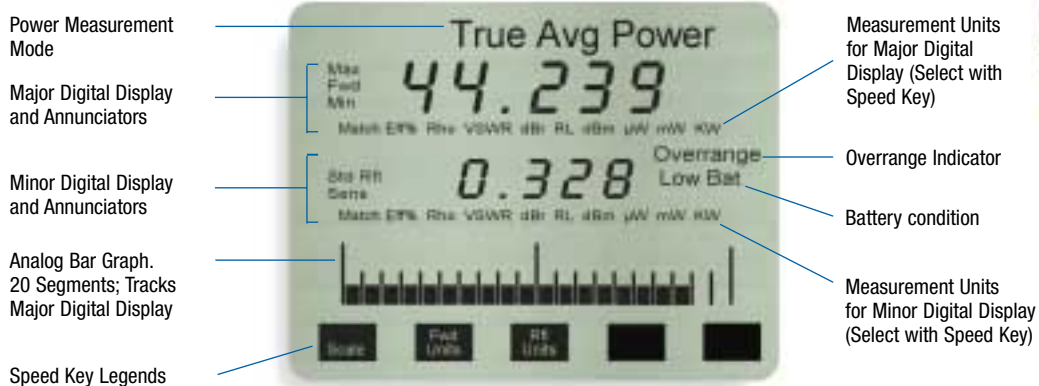
The highly-visible, back-lit LCD display simultaneously shows forward and reflected power or other selected parameters in digital format, while a 20-segment analog bar graph tracks forward power readings. Display annunciators show measurement mode, units, sensor type, overrange, battery condition, and "Speed Key" functions. Readings can be expressed as Watts, dB Return Loss and % Match Efficiency. VSWR is automatically calculated from forward and reflected power for fast, convenient antenna checks.

*DPM elements are available.



- Serial connector to sensor facilitates hand-held operation and remote sensing
- Serial connector for operation with a personal computer and Bird PC Tool software
- Back-lit, high-contrast LCD
- Speed Keys
- Easy-to-use, calculator-like interface
- Compact ergonomic case
- Internal rechargeable Nickel-Metal Hydride batteries

HIGH-CONTRAST BACK-LIT LIQUID CRYSTAL DISPLAY



100 hours per charge

MODEL 5000 / MODEL 5010

DIGITAL RF POWER METER

BIRD'S MOST SOPHISTICATED THRULINE® SENSOR SYSTEM IS THE HEART OF THE MODEL 5000

- Dual-element THRULINE® design for simultaneous forward and reflected power readings.
- Measures true average power.
- $\pm 5\%$ of reading accuracy rivals thermal wattmeters in actual field use.
- Small, easily-remoted sensor facilitates convenient hand-held operation.

The **Model 5010 Dual-Socket THRULINE® Power Sensor** is a precision 50-ohm 7/8-inch "Smart" Line Section which accepts Bird digital-ready Plug-in Elements. The **Model 5010 Sensor** provides true average power readings for digital as well as traditional analog RF systems.

The **Model 5010 Power Sensor** is compatible with many existing Bird accessories for 7/8" line, including signal samplers, and over 20 types of QC connectors. QC Connectors can rapidly and conveniently be changed in the field by removing four screws from the connector.

Use of an external sensor design makes the **Model 5000 Digital Power Meter** a perfect platform for sensor enhancements and cross-platform compatibility with other Bird product lines. Contact us concerning new developments.



5010 SENSOR SYSTEM

AVAILABLE ACCESSORIES

- Non-Directional Samplers and Directional Coupler Elements
- Quick-Change Connectors
- Handset output verification
- Waveform capture

CW, AM, AND FM

- Cellular Communication
- Analog Wireless Applications
- Television Video and Audio Power
- Aeronautical, Military, Public Service, and Mobile Radio Systems

DIGITALLY-MODULATED RF

- Cellular, PCS and Other Digital Wireless Communication Services
- DAB, DTV, and HDTV Pre- and Post-Combiner Power Measurements
- Handles Peak-to-Average Power Ratios up to 10 dB

PRODUCT CONVERSION/MARKET QUALIFICATION DPM 5000

Frequency Range	2-30 MHz	25-60 MHz	50-125 MHz	100-250 MHz	200-500 MHz	400-960 MHz	950-1260 MHz	1100-1800 MHz	1700-1990 MHz	1990-2200 MHz	2200-2300 MHz	2400-2500 MHz	2600-2700 MHz	3400-3500 MHz	3500-3600 MHz
Typical Market Application and Services	Military HF Tactical Radio Semiconductor Processing Maritime Radio Location Amateur Radio	Low Band PM Mobile Radio VHF TV VHF Tactical Military Amateur	FM Broadcast VHF TV Avionics Amateur	Public Safety Paging (VHF) Avionics VHF TV Military Tactical (USAF)	Public Safety Military Tactical Avionics Tetra	Cellular Telephone Paging UHF TV Public Safety	Avionics Radio location	Avionics Cellular Telephone (Japan)	Cellular Telephone (PCS, GSM) Cellular Telephone (WCDMA)	Cellular Telephone (PCS) Wireless Data	Cellular Telephone (UMTS, GSM) Cellular Telephone (WCDMA) Mobile Satellite	ISM (Research) Wireless Local Area Network Wireless Data	Wireless Local Loop (WLL) Third Generation Cellular Telephone (3G)	Wireless Local Loop (WLL)	Wireless Local Loop (WLL)
Typical Power Range	50W-10KW	50W-1KW	25W-1KW	25W-1KW	25W-500W	10W-500W	5W-250W	1W-50W	1W-50W	1W-50W	1W-25W	1W-25W	1W-25W	1W-10W	1W-10W
Applicable Bird Power Meters															
43	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
4304A	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
4391A	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
4410	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
APM16	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
4305	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
4431	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
4314B	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
4308	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Model 5000 / Model 5010	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

Advantages of DPM 5000 & DPS 5010

DIGITAL DISPLAY FEWER ELEMENTS DIRECT VSWR READOUT
 REMOTE SENSOR DATA LOGGING CAPABILITY SMALLER, LIGHTER
 LONG BATTERY LIFE ANALOG BAR GRAPH
 COMPLEX POWER MEASUREMENT MULTI-CARRIER CAPABILITY
 WIDE DYNAMIC RANGE

DPM IS TRULY DESIGNED FOR WIRELESS COMMUNICATIONS SYSTEMS

- Owing To True RMS Detection Technology The DPM 5000 Is Ideal For Cellular & PCS / DCS Systems With AMPS, CDMA, GSM & TDMA Modulation Schemes
- The DPM Will Also Be Suitable For 3rd Generation (3G), WLAN, WLL & UMTS Communication Systems
- Multicarrier Capable, May Place At Output Of Transmit Combiner Or Linear Power Amplifier
- Small Remote Sensor Designed For Space Restrictions In Base Station Environments
- DPM Provides Technicians With A Dual Digital Display Which Provides Additional Reading Capability
- Analog Bar Graph Provides For Quick Trend Analysis
- Wide Dynamic Range (16db+) Provides For Power Measurement For Systems With Widely Varying Transmitter Power Levels



NS



BROADCAST



- Display For BPM Series High Power In-Line Directional Power Meters.

- In Conjunction With Model 5010 Sensor As A Power Meter For Low Power Broadcast Facilities Suitable For Television & Audio Broadcast Applications.

- Compatible With All Digital Modulation Schemes In Use Today Including 8-VSB High Definition Television, COFDM & Radio Television Broadcasting

- Also Suitable For Analog Broadcast Applications (NTSC & PAL)

- Suitable For Power & VSWR Measurements After The System Combiner In Multicarrier Applications.

Semiconductor Industry

- DPM Also Suitable For ISM (Instrumentation Scientific Medical) Applications Such As Semiconductor Plasma Processing & Dielectric Etch (Wafer Processing).

Military And Avionics

- DPM Is An Ideal Power Meter In Many Military Applications Such As Tactical Communications, Flight Line Testing, Avionics Applications, DME And VOR.



SPECIFICATIONS

MODEL 5000 DIGITAL POWER METER AND MODEL 5010 THRULINE® POWER SENSOR

MODEL 5000 DIGITAL POWER METER

- Display:** Back-lit liquid crystal technology, 2.25" x 3.0" (57 x 76 mm). Three-way display consisting of major and minor digital display elements, analog bar graph element, annunciators, battery indicator and speed-key legends. All display elements visible simultaneously.
- Major Digital Display:** 5 digits, 5/16" (7.94 mm) high. Displays Forward Power, VSWR, dBm, Return Loss, and Match Efficiency.
- Minor Digital Display:** 5 digits, 1/4" (6.35 mm) high. Displays Reflected Power, VSWR, dBm, Return Loss, and Match Efficiency.
- Analog Bar Graph:** 20 segment, horizontal orientation. Tracks major digital display.
- Measurement Mode:** TRUE AVERAGE POWER, for measurement of conventional or digitally-modulated RF.
- Speed Keys:** SCALE, FWD UNITS, RFL UNITS. Set full scale power range and units for major and minor displays.
- Display Annunciators:** MATCH EFF%, VSWR, RETURN LOSS, dBm, μ W, mW, W, KW located below major and minor displays. Display also indicates Overage, and Low Battery.
- Sensor Interface:** 9-pin D-shell RS-232 serial connector. Sensor is powered from meter. Sensor is compatible with Bird VSWR Alarm products and Broadcast Power Monitor (BPM) product family.
- PC Interface:** 9-pin RS-232 serial port for connection to a PC.
- Dimensions:** 8.0"H x 4.63"W x 1.75"D (203 x 117.6 x 44.5 mm).
- Weight:** 1.5 lb, nominal (0.68 kg).

MODEL 5010 SENSOR

- Sensor Type:** Bird THRULINE® directional dual-element line section.
- Power / Frequency Range:** 1 to 1000 W*, 2.0 MHz to 3600 MHz*.
- Accuracy:** $\pm 5\%$ of reading (15° to 35°C), $\pm 7\%$ of reading (-10° to 50°C).
- Dynamic Range:** 40:1 (E.G. 50 W element measures 1.25 W to 50 W).
- Peak/Average Power Ratio:** 10 dB maximum with DPM elements.
- Settling Time:** < 2 seconds.
- Connectors:** QC Type. Female N normally supplied.
- Insertion VSWR:** 1.05:1 from 0.45 to 1000 MHz (with N connectors).
- Dimensions:** 1.875"H x 1.875"W x 3.5"D (47.7 x 47.7 x 88.9 mm) excluding connectors.
- Weight:** 1.12 lb (0.51 kg).

GENERAL SPECIFICATIONS

- Power Supply:** Rechargeable Nickel-Metal Hydride (NiMH) battery.
Meter may be operated from AC mains using supplied adapter.
- Battery Life:** 100 hours, minimum, per charge.
- Operating Temperature:** -10° to +50° C (Meter and Sensor).
- Storage Temperature:** -40° to +75° C. (Meter and Sensor).
- Humidity:** 95% \pm 5% max. (non-condensing).
- Mechanical Shock:** MIL-T-28800D Class 3.
- Vibration:** MIL-T-28800D Class 3.
- Altitude:** 15,000 ft. (4570 m) operating.
- EMC:** Complies with directive 92/31/EEC with exceptions noted.
- Emissions:** EN-55011, Class B. Immunity: EN-50082-1 at 10 V/m.
- Safety:** Complies with EN-61010, IAW Council Directives 73/23/EEC and 93/68/EEC.

ACCESSORIES

- Standard:** Instruction manual, serial communications cable (5010), AC charger/adapter
- Optional:** Automotive power adapter, PC software tool, soft carrying case



Preliminary specifications. Bird reserves the right to change features and specification without notice or obligation.
Meter, sensor, and plug-in elements priced separately.

* Power and frequency range based on selected plug-in elements.
Select FWD and RFL elements with a 10:1 power ratio.
Example: Select 50 W FWD element and 5 W RFL element.



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