The **RF** Experts

# CHANNEL POWER MONITOR

## Radio System Monitoring

# CPM SERIES

## Radio System Health Monitoring Solutions

Be confident of the status of each individual component in a radio system with effortless monitoring from a computer, tablet or mobile device.

Comprised of a central processor and a variety of sensors, the Bird CPM can be setup to monitor radio performance, combiner loss, and antenna/feedline characteristics providing continuous information on the health of each component it monitors.

Easy system access is available from any computer, tablet or phone on your network with the CPM-hosted web page. This allows for set up of alarms for failure conditions such as high or low power, or poor antenna VSWR. The monitor includes both software and hard contact alarms and can be configured to send SNMP Trap messages for emergency condition alerts. Data logging is standard and takes reliability one step further by enabling you to see degraded performance before it becomes an emergency.

Solutions are available for the entire range of Land Mobile Radio frequencies.

### PRODUCT FEATURES

- Power monitor display and sensors allow you to build a system around your needs.
- Monitor up to 16 non-directional and 16 directional sensors simultaneously.
- Measures forward, reflected, composite and individual channel power as well as antenna system VSWR.
- Monitoring of the system is accomplished via interface with the front panel or accessed through the built in web server and web page.
- Configurable alarming for high and low level power and high antenna VSWR, utilizing hard contact and SNMP formats.
- Standard Push-to-Talk (PTT) compatibility.

### SENSOR OPTIONS

- **Model 4044 Non-Directional Power Sensor** measures output power of either analog or digitally modulated radios up to 125 watts.
- **Model 4042 Directional Channel Power Sensor** provides power readings by individual channel.
- **Model 4043 Directional Power Sensor** provides composite power readings.
- **Model 5009 Directional Power Sensor** provides power readings in HF frequency bands.

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## CHANNEL POWER MONITOR DISPLAY

# 3141 MODELS

# Specifications

### SYSTEM

| | |
|---|---|
| **Input Voltage** | |
| **3141A15** | +15 VDC (supplied by 115/230 VAC Adapter) |
| **3141A48** | ±48 VDC (+48 or -48) |
| **Input Current** | |
| **3141A15** | <3 Amps |
| **3141A48** | <1 Amp |
| **Fuse Rating** | |
| **3141A15** | 5 Amp |
| **3141A48** | 1.25 Amp |

### ENVIRONMENTAL

| | |
|---|---|
| **Operating Temperature** | 0 °C to 50 °C (32 °F to 122 °F) |
| **Storage Temperature** | -20 °C to 80 °C (-4 °F to 176 °F) |
| **Humidity** | 95% ±5% max (non-condensing) |
| **Altitude** | up to 10,000 ft (3,048 m) |

### PHYSICAL

| | |
|---|---|
| **Size** | 1 RU<br>5.25 in X 19 in X 1.75 in<br>(133.35 mm x 483 mm x 44.5 mm) |
| **Weight** | Approximately 2 lb (0.85 kg) |

## NON-DIRECTIONAL POWER SENSOR

# MODEL 4044

### MEASUREMENT

| | |
|---|---|
| **Frequency Range** | |
| **4044-1-420404-yyzz** | 118 MHz to 136 MHz |
| **4044-1-440404-yyzz** | 144 MHz to 174 MHz |
| **4044-1-450404-yyzz** | 380 MHz to 450 MHz |
| **4044-1-460404-yyzz** | 450 MHz to 512 MHz |
| **4044-1-470404-yyzz** | 762 MHz to 806 MHz |
| **4044-1-480404-yyzz** | 806 MHz to 869 MHz |
| **4044-1-490404-yyzz** | 896 MHz to 940 MHz |

*See connection options below to build part number.*
*Custom band options available.*

| | |
|---|---|
| **Power Range** | 2.5 to 125 W |
| **Impedance** | 50 Ohms |
| **Accuracy** | ±5% of reading |
| **Insertion Loss** | <0.1 dB |
| **Insertion VSWR** | <1.10:1 max |
| **Intermodulation Distortion (PIM)** | <-140 dBc |

### CONNECTORS

| | |
|---|---|
| **Input Connector (yy)** | 01 = N(f)<br>02 = N(m)<br>03 = 4.3/10(f)<br>04 = 4.3/10(m) |
| **Output Connector (zz)** | 01 = N(f)<br>02 = N(m)<br>03 = 4.3/10(f)<br>04 = 4 .3/10(m) |

### SYSTEM

| | |
|---|---|
| **Power Supply** | 15 VDC, 5 mA max (from 3141) |
| **Interface** | 0-4 VDC via RJ-25 Connector |

### ENVIRONMENTAL

| | |
|---|---|
| **Operating Temperature** | 0 °C to 50 °C<br>(32 °F to 122 °F) |

### PHYSICAL

| | |
|---|---|
| **Size** | 2.3 in x 2.2 in x 1.7 in<br>(50 mm x 56 mm x 43 mm) |
| **Weight** | .2 lb (0.1 kg) |

### CERTIFICATIONS

| | |
|---|---|
| **Compliance** | CE, RoHs |

### STANDARD ACCESSORIES

| | |
|---|---|
| **5A2968T** | Termination (ships with CPM) |
| **5A2286S-KIT1** | Label kit (ships with CPM) |
| **5A2968-CS10** | Cable RJ25 (ships with sensors) |
| **7005A836-6** | AC/DC power supply (ships w/ 3141A15 only) |

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## CHANNEL DIRECTIONAL RF POWER SENSOR

# MODEL 4042

Specifications

### MEASUREMENT

| | |
|---|---|
| **Frequency Range** | |
| **4042-1-430505-yyzz** | 100 MHz to 1000 MHz |
| *See connection options below to build part number.* | |
| **Forward Power Measurement Range** | 10 W to 500 W<br>1 W to 50 W (06 option) |
| *Measure power and VSWR for up to 16 frequencies or channels with selectable bandwidths of 6.25, 12.5 or 25 kHz.* | |
| **Max Reflected Power Measurement** | 10 dB below Forward Power Range |
| **Dynamic Range** | 17 dB |
| **Impedance** | 50 Ohms |
| **Accuracy** | ±5% of reading |
| **Insertion Loss** | <0.2 dB |
| **Insertion VSWR** | <1.15:1 max |
| **Intermodulation Distortion (PIM)** | <-145 dBc |

### SYSTEM

| | |
|---|---|
| **Power Supply** | 7-18 VDC, <500 mA (from 3141) |

### ENVIRONMENTAL

| | |
|---|---|
| **Operating Temperature** | 0 °C to 50 °C<br>(32 °F to 122 °F) |

### PHYSICAL

| | |
|---|---|
| **Size** | 5.2 in x 3.8 in x 1.4 in<br>(132 mm x 96.5 mm x 35.5 mm) |
| **Weight** | .6 lb (.27 kg) |

### CERTIFICATIONS

| | |
|---|---|
| **Compliance** | CE, RoHs |

## DIRECTIONAL RF POWER SENSOR

# MODEL 4043

### MEASUREMENT

| | |
|---|---|
| **Frequency Range** | |
| **4043-1-420505-yyzz** | 118 MHz to 136 MHz |
| **4043-1-440505-yyzz** | 144 MHz to 174 MHz |
| **4043-1-450505-yyzz** | 380 MHz to 450 MHz |
| **4043-1-460505-yyzz** | 450 MHz to 512 MHz |
| **4043-1-470505-yyzz** | 762 MHz to 806 MHz |
| **4043-1-480505-yyzz** | 806 MHz to 869 MHz |
| **4043-1-490505-yyzz** | 896 MHz to 940 MHz |
| *See connection options below to build part number.* | |
| **Max Forward Power Measurement** | 25 to 500 W |
| **Max Reflected Power Measurement** | 10 dB below Forward Power Range |
| **Dynamic Range** | 13 dB |
| **Impedance** | 50 Ohms |
| **Accuracy** | ±5% of reading |
| **Insertion Loss** | <0.2 dB |
| **Insertion VSWR** | <1.15:1 max |
| **Intermodulation Distortion (PIM)** | <-145 dBc |

### SYSTEM

| | |
|---|---|
| **Power Supply** | 7-18 VDC, <50 mA (from 3141) |

### ENVIRONMENTAL

| | |
|---|---|
| **Operating Temperature** | 0 °C to 50 °C<br>(32 °F to 122 °F) |

### PHYSICAL

| | |
|---|---|
| **Size** | 5.2 in x 3.8 in x 1.4 in<br>(132 mm x 96.5 mm x 35.5 mm) |
| **Weight** | .5 lb (0.23 kg) |

### CERTIFICATIONS

| | |
|---|---|
| **Compliance** | CE, RoHs |

### CONNECTION OPTIONS FOR MODEL 4042 & MODEL 4043

| **Max Forward Power Measurement (ww)** | **Comm (xx)** | **Input Connector (yy)** | **Output Connector (zz)** |
|---|---|---|---|
| 05 = 500 W | 05 = RS-485 via RJ-25 | 01 = N(f) | 01 = N(f) |
| 06 = 50 W (4042 only) | | 02 = N(m) | 02 = N(m) |
| | | 03 = 4.3/10(f) | 03 = 4.3/10(f) |
| | | 04 = 4.3/10(m) | 04 = 4.3/10(m) |

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## DIRECTIONAL RF POWER SENSOR

# MODEL 5009

# Specifications

## MEASUREMENT

| | |
|---|---|
| **Frequency Range** | Element dependent, 2 MHz to 1000 MHz |
| *DPM elements only. Refer to birdrf.com for complete list of power & frequency bands for plug-in elements.* | |
| **Power Range** | Element dependent, 0.1 W to 1 kW full |
| **Impedance** | 50 Ohms |
| **True Average Power Accuracy** | ±5% of reading (15 °C to 35 °C) |
| **Peak Power Accuracy** | ±8% of full scale , Pulse-Power Elements. 800 ns to 15 us min. pulse width |
| **Insertion VSWR** | 1.05:1 max |

## CONNECTORS

| | |
|---|---|
| **RF Connectors** | QC Type. Female N normally supplied |

## SYSTEM

| | |
|---|---|
| **Power Supply** | From host instrument via cable connection |
| **Interface** | RJ25 |

## ENVIRONMENTAL

| | |
|---|---|
| **Operating Temperature** | -10 °C to 50 °C (14 °F to 122 °F) |
| **Storage Temperature** | -40 °C to 75 °C (-40 °F to 167 °F) |
| **Humidity** | 95% max (non-condensing) |

## PHYSICAL

| | |
|---|---|
| **Size** | 2.3 in x 2.1 in x 3.5 in<br>(58 mm x 53 mm x 89 mm)<br>Not including QC connectors |
| **Weight** | 1.12 lb (0.51 kg) |

## OPTIONAL ACCESSORIES

| | |
|---|---|
| **5A2968A-11** | Cable Adapter |

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