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## BIRD 4410A Multipower Meter



Elements sold separately.

The 4410A high-sensitivity wattmeter is a solid choice for field-service applications where the greater dynamic range of the plug-in elements substantially reduce the number of elements needed to cover multiple power and frequency ranges. It is also well-suited to laboratory work where power levels as low as 2 milliwatts must be measured with high accuracy.

Each 4410A wattmeter plug-in element is capable of reading seven different power ranges cover 0.002\* to 10,000 watts. The power ranges of

the different elements overlap and include: 0.002–10 W, 0.02–100 W, 0.2–1000 W and 2–10,000 W. All ranges are in frequency bands from 200 KHz to 2300 MHz. Any one of the seven power ranges is selected by a rotary switch located on the front of the wattmeter. Forward and reflected power measurements are accomplished by rotating the element.

Exceptional  $\pm 5\%$  of reading accuracy is achieved via a built-in temperature compensation circuit. This stated accuracy applies from 100% of full scale down to 20% of full scale across all seven ranges.

### Specifications:

**Power Range:** 2 mW to 10 W, 20 mW to 100 W, 200 mW to 1 kW or 2 W to 10 kW full scale in one single Plug-in Element. Any Bird Series 4410-Element may be used.

(This meter is not compatible with elements for the Bird 43.)

**Frequency Range:** 200 kHz to 2.3 GHz CW or FM

**Insertion VSWR:** with N Connectors 1.25 max to 2300 MHz

**Accuracy:**  $\pm 5\%$  of reading for any reading above 20% of the Power Range selected for FM or CW signals without AM. This accuracy is maintained for a full 37 dB dynamic range with each 4410

Element (except No. 4410-1 200 kHz–535 kHz which is accurate to  $\pm 10\%$  of reading, and 4410-15 1.0–1.8 GHz and 4410-16 1.8–2.3 GHz which are accurate to  $\pm 8\%$  of reading.)

**Ambient Temp Range:** Elements 4410-1 through -8 and -10 through -16 are temperature compensated for rated accuracy from 0°C to 50°C (32° to 122°F), and 4410-20 through 27 from 20°C to 30°C (68° to 86°F).

**Over-Range Protection:** To 120% of nominal full scale (i.e. 12 W, 120 W, 1,000 W, or 12,000 W). No damage or degradation to the unit will result, regardless of the Range Selector Switch position.

**Battery Life:** 24 hours min. with standard 9V Alkaline “transistor” battery (NEDA No. 1604A supplied)

**Connectors:** QC Type (Female N normally supplied)

**Nominal Size (includes connectors):** 6 7/8” H x 5 1/8” W x 3 5/8” D

**Weight:** 3 lbs.

**Part #: 4410A · Price: \$805.00 ea.**

### 4410 Series Elements

Table 9 - \$205.00 each

Full Scale Power and Frequency Ranges 0-10, 30, 100, 300 Milliwatts, 1, 3, 10 Watt

MHz	Model	MHz	Model	MHz	Model
30-50	4410-20	100-152	4410-22	400-800	4410-25
50-88	4410-21	150-250	4410-23	800-900	4410-26
88-108	4410-27	225-400	4410-24	900-1000	4410-28

Table 9A - \$205.00 each

Full Scale Power and Frequency Ranges 0-10, 30, 100, 300 Milliwatts, 1, 3, 10, 30 Watts

MHz	Model	Accuracy
864-868	4410-38	$\pm 10\%$ of reading accuracy on 100 mW, 300mW and 1 W, $\pm 5\%$ on all other scales
917-970	4410-29	$\pm 5\%$ 10 mW to 1 W only

Table 10 -

Full Scale Power and Frequency Ranges 0-100, 300 Milliwatts, 1, 3, 10, 30 Watts

MHz	Model	Price Ea.	MHz	Model	Price Ea.
25-80	4410-10	\$205.00	400-1000	4410-14	205.00
50-125	4410-11	205.00	1000-1800	4410-15*	287.00
100-250	4410-12	205.00	1800-2300	4410-16*	287.00
200-500	4410-13	205.00			

\* Accuracy is  $\pm 8\%$  of reading

Table 11 -

Full-Scale Power and Frequency Ranges 0-1, 3, 10, 30, 100, 300, 1000 Watts MHz

MHz	Model	Price Ea.
2-30	4410-3	\$287.00
25-80	4410-5	205.00
50-200	4410-6	205.00
144-520	4410-7	205.00
200-1000	4410-8	205.00

Table 12 -

Full-Scale Power and Frequency Ranges 0-10, 30, 100, 300, 1000, 3000, 10,000 Watts MHz

MHz	Model	Price Ea.	2-30	4410-4	287.00
0.2-0.535	4410.1	\$287.00			
0.45-2.5	4410-2	287.00			

**Ask about our reconditioned Bird 4410 & 4410A meters.**

## Power/SWR Meters

### DIAMOND ANTENNA POWER/SWR METERS



### SX-Series

Installs between transmitter and antenna for measurement of forward and reflected average (CW) and SSB (P.E.P.) RF power, and SWR. Accuracy is approximately that of the Bird 43; carrier measurements  $\pm 5\%$  (typical) of full scale depending on frequency and power. Illuminated meter, sensor switch and LED indicator. Power ratings listed below are for intermittent operation. For continuous mode (CW, FM, etc.) maximum ratings vary with frequency and are listed in the instructions. (SX100 requires 20W minimum power for VSWR measurement.) All models have SO-239 connectors except SX-1100 with Type-N. SX-600 & SX-1100 have dual directional couplers. Requires 12V DC if you wish to light meter.

6" w x 2 1/2" h x 4" d, 2 lbs.

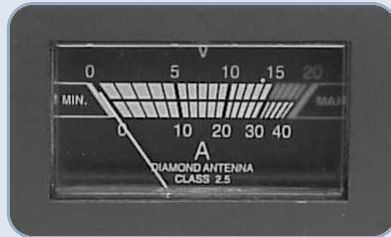
Model	Power	Range	Display	Price
SX100	3KW	1.6-60MHz	30W/300W/3KW	\$144.95
SX200	200W	1.8-200MHz	5W/20W/200W	99.95
SX400	200W	140-525MHz	5W/20W/200W	114.95
SX600	200W	1.0-160Mz + 140-525MHz	5W/20W/200W	184.95
SX1100	200W	1.8-160MHz + 430-1300MHz	5W/20W/200W	234.95



## Power Supply by Diamond Antenna

### Very Low Noise – Ideal for HF & VHF Transceivers

- Voltage Control Knob has center detent at 13.5 VDC.
- Over Temperature Protection.
- Meter Selector allows monitoring of voltage & current.
- Access to front panel DC Terminals and Cigarette Lighter jack. Standard 40A terminals on rear panel.
- Built in Speaker.
- Circuitry yields high RFI protection from external sources.
- AC line filter for EMI protection.
- Standard 3-wire Heavy Duty line cord.
- Power Indicator & Overload Indicator.
- Accepts 120 VAC  $\pm$  20% 50-60 cps.
- Ripple & Noise less than 8 mV r.m.s.



**DIAMOND  
ANTENNA**

### GZV4000

- **40 Amp** Continuous Rating, 100% Duty Cycle.
- Variable Voltage Control 5–15 VDC.
- Overload & short-circuit protection with Current Foldback at approximately 42 Amp.
- Size: 8.25" x 4.5" x 13" Weight: 8 lbs.

**Part #: GZV4000 • Price \$179.95**

### GZV6000

- **60 Amp** Continuous Rating, 100% Duty Cycle.
- Variable Voltage Control 1–15 VDC.
- Overload & short-circuit protection with Current Foldback at approximately 62 Amp.
- Size: 8.25" x 4.5" x 16" Weight: 12.8 lbs.

**Part #: GZV6000 • Price \$399.95**

The GZV4000 & GZV6000 are available in 220-240 VAC. Add -220 to part number.

\* 1 Year Limited Warranty.

## Power Supply by Lambda SWS300-24 Power Supply

Mfg: Lambda  
Adjustable 20-28.8V  
Rated 24VDC @ 13A  
Input 100-240VAC 50-60 Hz  
L x W x H (In.): 7 13/16 x 4 x 2-1/16

**Part #: SWS300-24 • Price: \$49.95 ea.**



## DC Power Supply

### +5V & +12V

UL Listed. Quality computer power supply. Ideal power source for home projects, relay control circuits, QRP Station, etc. Just remove the plug and wire directly. New in box.

Input: 120VAC 60 Hz  
Output: +5.1 VDC 600ma  
+12 VDC 1000ma  
Net weight: 3.5 lbs.  
Connector: 5 pin DIN Male Plug

**Part #: T66R  
Special \$4.95 ea.**



## Fieldpiece Digital Multimeters HS26 Stick Meter with optional Current Clamp Head



### 4 Functions – 11 Ranges

- Clamp head snaps on to directly display AC current
- Housing: small size, made of rugged Valox®, "O" ring sealed
- Hi voltage safety indicator – red LED blinks and beeper sounds when probes touch voltage greater than 28V
- Hold button – freezes display on command
- Max hold – holds highest reading
- Continuity beeper
- Protection: input protected by MOVs to 6000V transients, voltage withstand capability to 1000V peak
- Functions: volts, amps, ohms, capacitance

#### DC Voltage

Ranges: 200mV, 2000mV, 200V  
Resolution: 0.1mV on 200mV range  
Accuracy: 0.5%±1  
Input impedance: 10 MW  
Normal mode rejection ratio:  
>50 dB @>49Hz  
Common mode rejection ratio: >120 dE up to 1000VDC

#### Resistance

Ranges: 200Ω, 200KΩ  
Resolution: 0.1Ω on 200Ω range  
Accuracy: 1%±1  
Open circuit voltage: <0.3V,  
<3V on 200Ω range  
Test current: <2mA

#### AC Voltage

Ranges: 200mV, 2000mV, 200V, 750V  
Resolution: 1.0 mV on 200mV range  
Accuracy: 1.2%±3 @ 50Hz to 500Hz,  
2.0%±5 @ 500Hz to 1 KHz, 2.0%±5 @ 50Hz to 500Hz on 750VAC range  
Input impedance: 10MW  
Conversion type: Average measuring, rms indicating (sine wave).

#### Capacitance

Range: 200mF  
AC Current  
0-300A with ACH Clamp Head Accessory

UL Listed

### HS26 Digital Multimeter

Regular Price \$79.95 · RF Parts Special \$29.95 ea.

### ACH Current Clamp Head

Regular Price \$29.95 · RF Parts Special \$19.95 ea.

## Model LT83



The Model LT83 is an excellent meter for testing basic electrical parameters, including current, at a great price. Includes test leads and a rubber holster for added shock protection.

- Full function DMM at a great price: 5 functions, 25 ranges
- Works with all Fieldpiece accessories: 200mV ranges for 0.1 resolution on all accessory heads
- Measures current: from 0.1 microamps to 10 amps

### Specifications

Includes: meter with test leads.  
Data Hold: "HOLD" button "locks" reading. Any range, any function.  
Max Hold: "MAX" button displays the largest reading. Any range.  
Continuity beeper: indicated by a continuous "beep"  
Overload protection: 600VAC/600VDC for DCV, ACV, and phase indication. 500VAC/500VDC for capacitance, ohms, and diode test. Amps and capacitance ranges are protected.

### UL Listed

LT83	Ranges	Best Accuracy *	Resolution
VAC	200mV, 2000mV 20V, 200V, 600V	±(1.2%+4)	0.1mV
VDC	200mV, 2000mV, 20V, 200V, 600V	±(0.5%+1)	0.1mV
AAC	200mA, 200mA, 200mA, 10A, (300A AC clamp optional)	±(1.5%+4)	0.1mA
ADC	200mA, 20mA, 200mA, 10A	±(1.0%+1)	0.01mA
Resistance	200Ω, 2KΩ, 20KΩ, 200KΩ, 2MΩ, 20MΩ	±(1.0%+4)	0.1Ω

\*percent plus reading

Part # LT83 · Reg. Price \$44.95 · RF Parts Special \$29.95

## Digital Multimeters



### Model HB74

Heavy Duty construction with high voltage indication for safety. Valox case has tilt stand and fieldhanger on back and is fully gasketed. Functions were selected based on what field service technicians said they needed to do their job.

#### Specifications

Display HOLD: range, any function. "HOLD" button "locks" reading. Any frozen display on highest reading.

MAX Hold: LCD blinks and beeper sounds intermittently. (<150W) indicated by a continuous "beep" within 100 msec.

Dangerous voltage indication: LCD blinks and beeper sounds intermittently. (<150W) indicated by a continuous "beep" within 100 msec.

Continuity beeper: in the LCD.

Low battery indicator: Case design of hi-impact, fire retardant yellow Valox, 0"0" ring sealed.

Heavy duty: all volts ranges withstand 1200VDC and 850VAC (30 sec on 200mV ranges). All volts ranges are protected against transient voltages to 6000V/10 microseconds by a MOV (metal oxide varistor). All ohms and frequency ranges protected to 500V AC/DC. Phase rotation to 450VAC. Amps and capacitance ranges are protected by a fast blow 0.5A/500V (6.35mmx32mm) fuse (RFM74) on mA jack, high energy 20A/600V (1.5x.375") fuse (RFL701) on 20A jack.

Overload protection: Approximately 50 minutes.

Auto-power off:

- Phase rotation: for correct connection to 3 phase power.

- Max hold: freezes highest reading.
- Capacitance to 20,000 microfarads: for motor start/run capacitors.
- Microamps: resolution down to 0.01 microamps DC for flame safety diode circuit.
- Heavy duty test lead set.
- Rugged case: fully gasketed Valox housing.
- MOVs: for transient voltage protection.
- Safe: LCD indicator and audible "beep" to warn of high voltage.
- UL Listed

HB74	Ranges	Best Accuracy	Resolution
VAC	200mV, 2000mV 20V, 200V, 850V	±(1.2%+2 dgts)	0.1mV
VDC	200mV, 2000mV, 200V, 850V	±(0.5%+1 dgts)	0.1mV
AAC	200mA, 200mA, 20A, (30 sec max)	±(1.5%+3 dgts)	0.1mA
ADC	20mA, 200mA, 200mA, 20A, (30 sec max)	±(1.0%+1 dgts)	0.01mA
Resistance	200W, 2KW, 20KW, 200KW, 20MW	±(1.0%+1 dgts)	0.1W
Capacitance	20mA, 200mF, 2000mF, 20KmF	±(4.0%+10 dgts)	0.1mF
Phase Rotation	80VAC to 450VAC (3 phase)	"FORWARD" or "REVERSE"	
Frequency	200Hz, 2KHz	±(0.5%+3 dgts)	0.1Hz

#### Part #: HB74

Reg Price \$119.95 • RF Parts Special \$69.95

Fieldpiece® accessories are available from most Fieldpiece® distributors, including Johnstone Supply which has 245 nationwide stocking locations. Look up Johnstone Supply on the internet at [www.johnstonesupply.com](http://www.johnstonesupply.com).

MULTIMETERS: Fieldpiece HB74 & LT17



### Model LT17

#### HVAC/R Fieldpiece at a Great Price

Measures temperature accurately, even when ambient temperatures are changing fast. Measures amps three ways: 200µA range for flame rectifier diodes; 20mA range for 4-20mA loops; current clamp for currents to 300AAC with up to 0.1A resolution. Use the optional current clamp for

remotely measuring AC current on hard to reach wires. Ideal for electricians, motor and refrigeration servicing technicians.

- \* Volts, amps & ohms measurement
- \* Microamps: for flame rectifier diodes
- \* Temperature: 0.1°F resolution
- \* Capacitance: for motor start/motor run capacitors
- \* Frequency: for variable frequency motor controls

**Includes:** meter with rubber holster and test leads. Thermocouple and AC clamp available separately.

**Continuity beeper:** (<150W) indicated by a continuous "beep" within 100 msec.

**Overload protection:** 600VAC/600VDC for voltage ranges, 500VDC/350VAC (15 sec max) for 200mV ranges, 500VAC/500VDC for capacitance, ohms and diode test ranges. Current ranges protected by 0.1A/250V (5mm x 20mm fuse) model RF16.

#### Specifications:

LT17	Ranges	Best Accuracy	Resolution
VAC	200mV, 2000mV, 200V, 600V	±(1.2%+4)	100µV
VDC	200mV, 2000mV, 200V, 600V	±(0.5%+1)	100µV
AAC	200µA, 20mA, (300A clamp optional)	±(1.5%+1)	100nA
ADC	200µA, 20mA	±(1.0%+1)	100nA
Resistance	200W, 200KW, 20MW	±(1.0%+4)	0.1W
Capacitance	20µF, 200µF, 2KµF, 20KµF	±(4.0%+10)	0.01µF
Frequency	10 to 40KHz	±(0.1%+3)	1Hz
Temperature	-40°F to 750°F	±(1°F w/cal)	0.1°F

Part #: LT17 • Reg. Price \$89.95 • Special Price \$69.95



## Model HD110



Heavy Duty construction with high voltage indication for safety. Valox case has tilt stand and fieldhanger on back and is fully gasketed. Functions were selected based on what field service technicians said they needed to do their job.



- Completely sealed and environment-proof meters
- VDC accuracy of 0.1 %
- Large 20mm (0.8") high display
- Continuity test with continuous tone
- Superior 1500-hour battery life

**Part #: HD110 • \$179.95**  
Limited Quantity



Contact our tech help line  
and speak with an engineer at

**760-744-0500**

## Bird Antenna Testers

**Bird's AT-Series Antenna Testers can test an entire band in a matter of seconds**, with accurate results regardless of antenna cable length. Menu driven, software-defined keys and digital keypad quickly select operating mode and enter test parameters. A self-contained RF source precisely sets the test frequency. A built-in adaptable antenna jack mates a wide range of standard RF connectors.

**Swept Frequency Measurements** – Show VSWR, Match Efficiency or Return Loss across the entire band. A moveable cursor pinpoints scan frequency and digitally displays the corresponding measurement value.

**Single-Frequency Mode** – Can be used to optimize antenna performance and troubleshoot intermittent problems.

**Limit Testing** – Quick Pass-Fail indication compares measurements to user-selected.

**Audible Indicator** – Pitch varies with match condition for easy, hands-on antenna adjustment.

**Field-Strength Measurements** – Verifies the output of devices such as portable radios and cell phones.

**Data Storage** – Saves and recalls up to 12 scans in nonvolatile memory for long-term monitoring of antenna performance.

**Serial Communication Link** – Optional Software uploads data to a personal computer for analysis for storage.

**Backlit Liquid Crystal Display** – Produces text and high-resolution graphics.

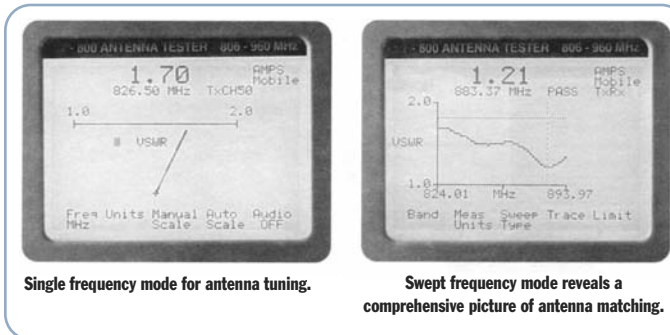
**Portable** – Lightweight, easy-to-carry, with rechargeable batteries.

**Rugged** – Designed to meet the harsh environment requirements of MILIT 28800.



**Model AT-800**

**The AT-Series contains a serial interface for downloading and analyzing test data with a personal computer.**



**Single frequency mode for antenna tuning.**

**Swept frequency mode reveals a comprehensive picture of antenna matching.**

### Specifications

Frequency Range:	AT-500	2 - 520 MHz
	AT-800	806 - 960 MHz
Frequency Resolution:	AT-500	20 kHz
	AT-800	30 kHz
Frequency Accuracy:	AT-500	±50 kHz
	AT-800	±50 kHz
Measurement Range:	VSWR:	1.00 - 99.99
	Match Efficiency:	00 to 100.0%
	Return Loss:	0.0 to -32.0 dB
Measurement Speed (Typical):	Single Frequency:	5 readings / second
	Swept Frequency:	1 sweep / second
Preprogrammed Bands:	AT-800 only AMPS, NADC, GSM, PDC, CT2	
Field Strength:	0 to 100% (relative)	
Sensitivity for full-scale deflection:	AT-500	0.22 v / m @ 400 MHz
	AT-800	0.22 v / m @ 400 MHz
Test Port:	Impedance: 50 ohms, nominal. Standard connector	
	AT-500	N (F)
	AT-800	N (F)
Interface:	Serial (female DB-9 connector)	
Power Requirements:	Batteries:	6 rechargeable AA
	External DC:	11-16 Vdc
	External AC Adapter:	108-132 VAC @ 57-63 Hz, or 207-253 VAC @ 48-52 Hz
Operating Temperature:	0° to 50°C (32° to 122°F)	
Storage Temperature:	-41° to 71°C (-40° to 160°F)	
Size: (including connector)	8" H x 4 5/8" W x 1 3/4" D	
Weight:	2 lbs.	

**Part #'s: AT-500 and AT-800 • Price: \$1407.00 each**

# ANTENNAS

## D130 Series Super Discone Antennas

The most popular ultra-wideband antenna for Scanners and general communications.

- Ideal Service Shop bench antenna.
- Rated 200 watts CW/FM.
- 25-1300 MHz receive, 50-1300 MHz transmit
- Whip tunable for 6m, 50 watts (1.5 MHz BW transmit)

**DIAMOND**  
ANTENNA



**Part #: D130J (UHF Connector)**  
**Price: \$99.95 ea.**

**Part #: D130NJ (Type-N Connector)**  
**Price: \$99.95 ea.**

## Diamond D220 Mobile Scanner Antenna

### Mobile Mini Discone Antenna

100 to 1600MHz receive, 144/430/904/1200MHz transmit  
1/2wave(144MHz), 2x5/8wave(430MHz)

Bands:	100-1600 MHz
Gain dBi:	2.15dBi(144/904/1200MHz) 5.5dBi(430MHz)
Max Power Rating:	50W
Impedance:	50ohms
VSWR:	Less than 1.5:1
Height:	35.5"
Weight:	1.2 lbs.
Max Diameter:	8.5"
Connector:	UHF
Element Phasing:	Wideband Discone.
6m:	50 Watts

**Part #: D220 • Price: \$99.95 .**



## UHF Vertical Antenna

**Special Purchase!**

### Mfg. Sinclabs (Canada)

UHF Omni-directional Base Antenna.  
450-470 MHz, 3dB (<1.5 vswr from 440-480 MHz). Made from durable schedule 80 PVC.

Excellent for fixed station applications or is durable enough to take portable or for Field Day use.

Antenna comes with 30' Belden RG58/U cable, mini-UHF fitting, mounting hardware, U Bolts & weatherproofing.

**Part #: SVU4500SP1**  
**Regular Price: \$49.95**  
**RFP Special Price: \$19.95 ea.**



## GPS Antenna Module

### Mfg. Larson

#### Electrical Specifications:

Frequency:	1575.42 ± 1.023 MHz
Nominal Impedance:	50 Ohms
VSWR:	2:1 Max
LNA Gain:	25 dB ± 2
Polarization:	R.H.C.P
Noise Figure:	2.5 dB Max
Current:	20 dB Max Dc +4.5 ~ 12 V 30 mA Max
Connector:	T ype-N Female w/ Male Adapter

#### Mechanical Specifications:

Weight:	1 lb.
Overall Dimensions:	4.28" W x 15.8" H

#### Environmental Specifications:

Operating Temperature:	-85 / +176 F (-30 / +80 C)
Storage Temperature:	-85 / +194 F (-30 / +90 C)

Comes with mounting bracket and pole.

**Part #: GPS0015**  
**List Price: \$272.00**  
**RF Parts Special Price: \$89.95**

