

Specifications

Antenna Testing

Frequency Characteristics

Frequency Range:	25 MHz to 1700 MHz
Frequency Resolution:	
25 – 800 MHz	25 kHz
800 – 1700 MHz	50 kHz
Frequency Accuracy:	± 150 kHz (75 ppm)
Number of Points:	238

Measurement Range and Resolution

	Range	Resolution
Return Loss:	0.0 to –60.0 dB	0.1 dB
VSWR:	1.00 to 99.99	0.01

Measurement Uncertainty (after 1 display refresh)*

Return Loss:	Refer to the figure on page 100. Determined graphically from composite of 1.12 source VSWR, instrumentation error, and directivity:
VSWR:	Calculated from Return Loss

Test Port

Connectors:	N, Female normally supplied
Impedance:	50 Ohms

Directivity

After calibration:

Connector	Frequency	Directivity
N	25 – 1700 MHz	– 42 dB
7/16	25 – 1700 MHz	– 40 dB

Measurement Speed

< 3 seconds/sweep (13 ms/data point),
test port open, y-axis set to full scale

Immunity to Interfering Signals

≥ 13 dB interferer at desired
measurement frequency.

Maximum Input Signal (Damage Level) ≥ 22 dBm

Output Power < 0 dBm

Distance to Fault (DTF) Measurement

Mode: Internal

Resolution [R]

X-Axis:

$$R \equiv \frac{V_p \times 3 \times 10^8}{2 \times \Delta F}$$

Where R=Resolution (meters),
 V_p =Velocity of propagation[†],
 ΔF = Frequency span

Y-Axis: 0.1 dB, 0.01 VSWR

Range

X-Axis: 238 x R

Y-Axis: 0 to -60 dB

Accuracy

X-Axis: $\pm 2\%$ of full-scale range with $V_p = 1$

Y-Axis: Same as for Return Loss Measurements

V_p Range: 0.20 to 1.00, or 1.00 to 99%

* Accuracy only guaranteed when using a Bird Type B Calibration Combo (See page 101).

† Dielectric Constant – The dielectric constant (ϵ_r) of the antenna cable determines the propagation velocity of the cable ($V_p = 1/\sqrt{\epsilon_r}$), which together with the frequency range of the match data, determines the maximum distance for which the calculation can be done without aliasing errors.

Power Measure Mode (SA-1700P Only)

Function: Displays power from Bird power sensors, VSWR alarm and BPM (specifications determined by sensor)

General

Data Storage: 250 traces in fundamental data format stored in non-volatile memory. Traces may be recalled and displayed in any of the display formats.

PC/Remote Power Sensor Interface Port

Connector: Female DB-9, compatible with PC serial port.
Protocol: Serial RS-232, 9600 baud, 8 data bits, 1 stop bit, no parity, and no handshake.

Printer Interface Port

Connector: Female DB-25, compatible with PC parallel port.
Compatibility: HP Deskjet printers with PCL Level 3 protocol

Power Requirements

Internal: Lithium-ion rechargeable battery
3 hours minimum operating time
External DC: 9 to 16 Vdc
External AC: 90 to 264 Vac @ 45 to 66 Hz

Physical Specifications

Dimensions: 10.44" x 8.38" x 3.28" (265 x 212 x 83 mm)
Weight: < 5 lbs. (2.3 Kg)

Environmental Specifications

Operating Temp: -10° to 50°C (14° to 122°F)
Storage Temp: -40° to 80°C (-40° to 176°F)
Humidity: 95% maximum (non-condensing)
Altitude: up to 15,000 feet (4,572 m)

International Standards

EMC:	Conforms to: EN 63126-1:1997
Safety:	Conforms to: EN 61010-1:1993, with Amendment A2:1995

Calibration

Calibration Cycle:	User Defined
Recommended Calibration Interval:	12 months