

Bird® SignalHawk™

Model SH-362S: Spectrum Analyzer & 2-Port VNA

Model SH-361S: Spectrum Analyzer & 1-Port VNA

Model SH-362: 2-Port VNA (1.6 MHz to 3.6 GHz)

Model SH-36S: Spec An (100 kHz to 3.6 GHz)

MODEL	OPTIONAL ACCESSORIES
7002A222-1	GPS Sensor
7002A225-1	Hard Transit Case, Watertight
7002A221	Connector Cover
USB-MOUSE	USB Mouse, Ultra-Portable, Optical
USB-HUB	USB Hub, 4-Port, Micro
TC-MNFN-1.5	Test Cable, 1.5 m, N(M) to N(F)
TC-MNFN-3.0	Test Cable, 3.0 m, N(M) to N(F)
TC-MNMN-1.5	Test Cable, 1.5 m, N(M) to N(M)
TC-MNMN-3.0	Test Cable, 3.0 m, N(M) to N(M)
TC-MNFE-1.5	Test Cable, 1.5 m, N(M) to 7/16 DIN(F)
TC-MNFE-3.0	Test Cable, 3.0 m, N(M) to 7/16 DIN(F)
TC-MNME-1.5	Test Cable, 1.5 m, N(M) to 7/16 DIN(M)
TC-MNME-3.0	Test Cable, 3.0 m, N(M) to 7/16 DIN(M)
PA-MNME	Adapter, N(M) to 7/16 DIN(M)
PA-FNME	Adapter, N(F) to 7/16 DIN(M)
PA-MNFE	Adapter, N(M) to 7/16 DIN(F)
PA-FNFE	Adapter, N(F) to 7/16 DIN(F)
4240-550	Adapter Kit, 7/16 DIN
4240-500-1	Adapter, N(F) to N(F)
4240-500-6	Adapter, N(M) to N(M)
4240-500-10	Adapter, N(M) to SMA(F)*
4240-401	Interseries Adapter Kit, N/SMA/T/BNC

*Recommend N(M) to SMA(F) adapter (model 4240-500-10) for field strength antennas.

MODEL	OPTIONAL EXTERNAL POWER SENSORS
5012	Wideband Power Sensor, 350 MHz to 4 GHz, 150 mW to 150 W Avg, 400 W Peak. Measures fwd/rfl avg, VSWR, return loss (dB), peak, burst avg, crest, CCDF. Forward average power accuracy is 4% (0.2 dB)
5010B	Directional Power Sensor, 2 to 2700 MHz, 100 mW to 10 kW, requires elements. Measures fwd/rfl avg, VSWR, return loss (dB), and peak. Forward average power accuracy is 5% (0.2 dB)
5010T	Directional Power Sensor, Tetra Version, 2 to 2700 MHz, 100 mW to 10 kW, req elements. Measures fwd/rfl avg, VSWR, return loss (dB), and peak. Forward average power accuracy is 5% (0.2 dB)
5011	Terminating Power Sensor, 40 MHz to 4 GHz, 10µW to 10 mW (-20 dBm to +10 dBm). Measures forward average power. Accuracy is 5% (0.2 dB)
5011-EF	Terminating Power Sensor, 40 MHz to 12 GHz, 10µW to 10 mW (-20 to +10 dBm) Measures forward average power. Accuracy is 5% (0.2 dB)
5016	Wideband Power Sensor, 350 MHz to 4 GHz, 25 mW to 25 W Avg, 400 W Peak. Measures fwd/rfl avg, VSWR, return loss (dB), peak, burst avg, crest, CCDF. Forward average power accuracy is 4% (0.2 dB)
5017	Wideband Power Sensor, 25 MHz to 1 GHz, 500 mW to 500 W Avg, 400 W Peak. Measures fwd/rfl avg, VSWR, return loss (dB), peak, burst avg, crest, CCDF. Forward average power accuracy is 4% (0.2 dB)

SPECTRUM ANALYZER / VNA

The SignalHawk™ Series of Spectrum Analyzers and VNA is the most user-friendly and accurate hand-held test solution available for installing, maintaining and troubleshooting all segments of RF communication systems. Field engineers, technicians, wireless equipment manufacturers, service providers, contractors, tower erectors and military field personnel alike have come to trust the efficiency and precision results of SignalHawk.



PROBLEMS

Low fault location resolution

Low frequency resolution

Slow sweeps

Poor lighting or bright light

Cross platform compatibility

Cable loss masking effect
cable loss masking effect

SOLUTIONS

-42 dB directivity and -135 dBm noise floor allows 11,265 points, or 20x the distance window (1488') at the same 1.6" resolution

More than 50% greater freq resolution (705 vs. 461 points) than others

More than 2x faster sweep times than the competition (705 pts in 1.15 vs. 517 pts in 1.85)

Large 34 sq in high-resolution, full-color display for indoor or outdoor viewing

Compatible with several sensors for additional apps at nearly half the cost of alternatives

Ability to add offsets to minimize

Laptop requirement

Lack of access to AC

Lack of universal connectivity and data storage

Varying field tech skill levels

Physically demanding operations

Work orders can be viewed right on the instrument with a .pdf/.doc viewer. Can upload custom user-written WordPad help file

40% longer battery life (5.5 hours per charge), with field-replaceable battery

USB drive stores up to 90,000 traces

Easy-to-use, intuitive menus with one-button setup and on-board help. Five ways to look at mismatch

Rugged unit, drop tested per military and European standards



You're heard, loud and clear.

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Applications

Cellular, PCS, DCS, 2G, 3G, 4G, CDMA, cdmaOne, CDMA 2000, 1x, 1x EV-DO, GSM, GPRS, EDGE, UMTS, HSDPA, W-CDMA, TDMA, AMPS as well as 802.11, Bluetooth, Broadcast, Emergency, Fire, GPS, HDTV, IBOC, In-Building, Lab, Microwave, NPS/PAC, Paging, Police, Private, Project 25, Public Safety, Tactical Military, Telematics, Tetra, Trunking, Utilities, WiMAX, WLAN and WLL.

Spectrum Analyzer Specifications

Frequency Range	100 kHz to 3.6 GHz
Frequency Resolution	1 Hz
Frequency Uncertainty	± 1 ppm
Reference Aging	± 1 ppm / year
Temperature Drift	± 1 ppm / °C
Data Points	705 displayed
Spectral Purity	-85 dBc @ 30 kHz
Sweep Time	2.2 s, full span; 1 ms, zero span
Resolution Bandwidth	100 Hz to 1 MHz RBW
Video Bandwidth	10 Hz to 300 kHz VBW
Amplitude Accuracy	± 1.0 dB typ, ± 1.5 dB max
Dynamic Range	66 dB, intermod-free
Noise Floor	-135 dBm DANL
Attenuator	0, 10, 20, or 30 dB; internal
Pre-Amplifier	+24 dB gain, internal
Single-Button Measurements	Occ BW, Channel Power, ACPR, Field Strength, AM/FM Demod, C/I



Power Meter Option: compatible with Models 5012, 5010B, 5010T, 5011, 5011-EF, 5016 and 5017 power sensors. These external power sensors provide ± 5% (± 0.2 dB) accuracy, with NIST Traceability.

SignalHawk Specifications

Display	8.4", TFT, 800 x 600 pixel
Battery	5.5 hour, field replaceable
Drop Test	1 meter per EN 61010-1
Transit Drop Test	10 drops per MIL-PRF-28800F
Explosive Atmosphere	Per MIL-PRF-28800F 4.5.6.3
CE Compliant	Yes
RF Input, N(F)	+20 dBm (100 mW) max
USB Connectivity	PC; USB drive and accessories
Size and Weight	11.5" x 10.5" x 3.8", 7.8 lbs
Saved Trace Storage	300 internal; 90,000 USB drive
Win CE Viewers	Word, Excel, PPT, PDF, Image
Power Meter	5012, 5010B, 5010T, 5011, 5011-EF, 5016 and 5017 External Sensors, Optional

VNA Specifications

Frequency Range	1.6 MHz to 3.6 GHz
Frequency	+/- 2 ppm uncertainty, 40 kHz res
Data Points	705 default, 12 to 11265 selectable
Sweep Time	0.6 s with 705 data points
RF Output, N(F)	-40 dBm to +10 dBm, 1 dB steps
Interference Immunity	+13 dBm on frequency
Directivity	-42 dB calibrated
1-Port VNA Measurements	Match (VSWR & Return Loss dB) Distance-to-Fault (DTF), Cable Loss
2-Port VNA Loss/Gain	-90 to +50 dB, 12/24 V Int Bias-Tee
2-Port VNA Measurements	Gain & Loss (Amplifier Gain, Insertion Loss, Antenna Isolation)

Model Standard Accessories

7002A220-1	Soft Carry Case
920-SH36-OPS	OPS Operators Manual
920-SH36-REF	Start-Up Instructions
5A2653-10	USB Cable, 10 ft, USB A (M) to USB B (M)
5A2743-1	AC Adapter/Charger
5A2238-3	Car Adapter/Charger
5A2720-2	Internal Li-Ion Battery, Field Replaceable
7002A210	PC Tool Software and Manual CD's
5A2745-1	USB Drive 1 GB, Win CE Compatible

Spare standard accessories are available as optional accessories. Manuals and soft/firmware updates available at www.bird-technologies.com.

Model VNA Optional Accessories

CAL-MN-C	Calibration Combo, Open/Short/Load, N(M)
CAL-FN-C	Calibration Combo, Open/Short/Load, N(F)
CAL-ME-C	Calibration Combo, Open/Short/Load, 7/16 DIN(M)
CAL-FE-C	Calibration Combo, Open/Short/Load, 7/16 DIN(F)
2-T-MN	Load, 2 W, N(M)
2-T-FN	Load, 2 W, N(F)
5A2264-09-MF-10	RS-232 Cable, 10 ft, 9-pin, (M) to (F)

Model Spectrum Analyzer Optional Accessories

4240-500-10	Field Strength Antenna Adapter, N(M) to SMA(F) *Recommended for field strength antennas
ANT-100	Field Strength Antenna, 136 to 221 MHz, SMA(M)*
ANT-400	Field Strength Antenna, 400 to 512 MHz, SMA(M)*
ANT-800	Field Strength Antenna, 824 to 894 MHz, SMA(M)*
ANT-900	Field Strength Antenna, 890 to 960 MHz, SMA(M)*
ANT-1800	Field Strength Antenna, 1710 to 1880 MHz, SMA(M)*
ANT-1900	Field Strength Antenna, 1850 to 1990 MHz, SMA(M)*
ANT-2400	Field Strength Antenna, 2400 to 2500 MHz, SMA(M)*
100-SA-MFN-40	Attenuator, 100 W, 40 dB, N(M) to N(F), 2.4 GHz
50-A-MFN-30	Attenuator, 50 W, 30 dB, N(M) to N(F), 4 GHz
25-A-MFN-30	Attenuator, 25 W, 30 dB, N(M) to N(F), 4 GHz
10-A-MFN-30	Attenuator, 10 W, 30 dB, N(M) to N(F), 4 GHz
5-A-MFN-20	Attenuator, 5 W, 20 dB, N(M) to N(F), 4 GHz
2-A-MFN-20	Attenuator, 2 W, 20 dB, N(M) to N(F), 4 GHz
5A2746-1	Headphones

WATERFALL (SPECTROGRAPH)

