

# COMSEC KESTREL SURFACE RF LOCATOR KITS

A Comprehensive, Mobile SIGINT RF Spectrum Analysis Solution  
Featuring Kestrel TSCM Pro Software



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# INTRODUCTION: COMSEC KESTREL SURFACE RF LOCATOR KIT



ComSec LLC's Kestrel Surface RF Locator Kits are optimal for Mobile Signal Intelligence (SIGINT) gathering, as well as Technical Surveillance Counter Measures (TSCM) and other RF spectrum monitoring applications. ComSec LLC is the exclusive, sole source COTS provider of the Kestrel TSCM Pro Software and the ComSec KSRFL, KSRFL-2, and KSFRL-B kits in the United States of America.

All systems are delivered field ready.

## Technologically Sound Solution

- Powerful, Full-Featured, & User-Centric Kestrel TSCM Pro Software
- High-Performance & Reliability of Signal Hound Spectrum Analyzer
- Computing Power & Versatility of Microsoft Surface Book 3

## Benefits of ComSec Kestrel Surface RF Locator Kits

- We source and order components, perform quality checks, and assemble the kits.
- All components needed to run the Kestrel TSCM Pro Software system are included in the kit.
- Components are high-quality, field-tested, and provide optimal performance with the system.
- The computer is updated to the most recent OS and optimized for use with the software.
- The Kestrel TSCM Pro Software is pre-loaded and paired with the SDR.
- System operation has been verified and is field ready.

## **KIT VARIATION 1: KSRFL SIGNAL HOUND BB60C SDR (BACKPACK)**

This model features the Signal Hound BB60C SDR: 9 kHz to 6 GHz Spectrum Analyzer and RF Recorder with an instantaneous bandwidth of 27 MHz and sweep speeds of 24 GHz/sec.

### **Each KSRFL Kit Includes:**

- One (1) Ruggedized Microsoft Surface Book 3
- One (1) Signal Hound BB60C Spectrum Analyzer (0C – 65C Plus Standard Temperature)
- One (1) Kestrel TSCM Professional Software License
- One (1) Kestrel Log Periodic Antenna Kit
- One (1) Power Bank
- One (1) Wired Mouse
- One (1) Universal USB 3.1 Hub
- One (1) Backpack
- Kit Components List
- Kestrel Quick Start Guides
- Manufacturer Product Inserts

## **KIT VARIATION 2: KSRFL-2 SIGNAL HOUND SM200B SDR (BACKPACK)**

This model features the Signal Hound SM200B SDR: Tunes from 100 kHz to 20 GHz. Sweeps at 1 THz/sec at 30 kHz RBW (using Nuttall windowing). 160 MHz of instantaneous bandwidth. 110 dB of dynamic range . Phase noise performance that is low enough to contribute less than 0.1% error to EVM measurements. GPIO port antenna switching.

### **Each KSRFL-2 Kit Includes:**

- One (1) Ruggedized Microsoft Surface Book 3
- One (1) Signal Hound SM200B Spectrum Analyzer (0C – 50C Plus Standard Temperature)
- One (1) Kestrel TSCM Professional Software License
- One (1) Kestrel Log Periodic Antenna Kit
- One (1) Power Bank
- One (1) Wired Mouse
- One (1) Universal USB 3.1 Hub
- One (1) Backpack
- Kit Components List
- Kit Packing Instructions
- Kestrel Quick Start Guides
- Manufacturer Product Inserts

## **KIT VARIATION 3: KSFRL-B SIGNAL HOUND BB60C SDR (PELICAN BRIEFCASE)**

This model features the Signal Hound BB60C SDR: 9 kHz to 6 GHz Spectrum Analyzer and RF Recorder with an instantaneous bandwidth of 27 MHz, and sweep speeds of 24 GHz/sec.

### **Each KSFRL-B Kit Includes:**

- One (1) Ruggedized Microsoft Surface Book 3
- One (1) Signal Hound BB60C Spectrum Analyzer (0C – 65C Plus Standard Temperature)
- One (1) Kestrel TSCM Professional Software License
- One (1) Omni Directional Antenna
- One (1) Search Antenna with Ten (10) foot lead cable
- One (1) Wired Mouse
- One (1) Universal USB 3.1 Hub
- One (1) Covert Pelican Briefcase
- Kestrel Quick Start Guides
- Manufacturer Product Inserts

The Signal Hound BB60C and the Omni Directional Antenna are covertly embedded in the pelican briefcase lid behind the organizer. The computer, mouse, and hub are the only visible components in the briefcase kit.

# KESTREL TSCM PRO SOFTWARE



Kestrel TSCM Pro Software is a powerful, full-featured, professional Technical Surveillance Countermeasures (TSCM) and Signals Intelligence (SIGINT) software. It is included and pre-installed in every Kestrel Surface RF Locator Kit.

Kestrel TSCM Pro leverages advanced software-defined radio (SDR) concepts to deliver standalone RF spectrum surveillance, monitoring, collection, and analysis functionality. It is highly deployable, mission scalable, and travel-friendly.

With Kestrel Software, the technical operator is back in command of the analytical process. The software features an intuitive, user-friendly, operator-centric user interface. The technical operator can setup, navigate, view, and analyze multiple instances of independent spectrum and waterfall data sets. Kestrel also supports a variety of global and independent preferences to improve operator situational awareness.

## Features of Kestrel TSCM Pro Software:

- Ergonomic user interface
- RF Spectrum Display
- Waterfall Display
- Live View Analysis™
- Artificial Intelligence
- Demodulation and Visualization
- Threat Detection Algorithm
- Locational Differential Signal Analysis
- Time Differential Signal Analysis
- Spectrum Baseline Logging
- Session Report Generator

Kestrel TSCM Pro Software Optional Modules Available at an Additional Cost: ASK, OPT AEC, OPT CLP, OPT AMCS, OPT TCP & OPT DTAP-GPS.

# SIGNAL HOUND BB60C SPECTRUM ANALYZER

The Signal Hound BB60C is a high-speed, real-time spectrum analyzer (RTSA) and RF recorder. It tunes from 9kHz to 6GHz, collects 80MSamples/second, and streams data to your computer via USB3.0 at 140MB/sec.

The BB60C comes with the Spike™ API and spectrum analyzer application, has selectable color persistence display mode, 2-D color waterfall, and digital modulation analysis tools.

The digital modulation analysis tools include constellation diagrams, EVM measurements, symbol tables, and bit pattern matching for BPSK, DBPSK, QPSK, DQPSK, OQPSK,  $\pi/4$ DQPSK, 8PSK, D8PSK, and QAM16.

## BB60C Features

- RF frequency range from 9 kHz to 6 GHz
- Up to 24 GHz/sec sweep speed ( $\geq 10$  kHz RBW)
- Wide dynamic range from -158 dBm to +10 dBm
- Resolution bandwidths available from 10 Hz to 10 MHz
- Powered solely through USB, no external power supply needed
- Powerful digital signal processing happens on the PC
- Software and hardware included for one low price
- Use Signal Hound's API (Application Programming Interface) to develop your own applications
- Get started quickly by customizing the included open-source GUI
- Digitized IF Data at 80 million samples per second
- 27 MHz instantaneous bandwidth
- USB 3.0 communications providing 140 MB/sec sustained throughput to PC
- Measures under 9 inches long



# SIGNAL HOUND SM200B SPECTRUM ANALYZER

The SM200B is a high-performance spectrum analyzer and monitoring receiver. Tuning from 100 kHz to 20GHz, the analyzer has 160 MHz of instantaneous bandwidth (IBW), 110 dB of dynamic range, and 1THz/sec sweep speed at 30kHz RBW (using Nuttall windowing). The phase noise performance of the SM200B is low enough to contribute less than 0.1% error to EVM measurements and rivals even the most expensive spectrum analyzers on the market.

Signal processing is distributed between a very powerful Altera FPGA and an external PC with an Intel Core i7 processor (Surface Book 3 included in each kit). The SM200B can be readily interfaced, using its local API, to an automated monitoring system or automated test equipment. The SM200B API provides customers the access needed to insert their own DSP algorithms into a calibrated stream of I/Q data.

## Frequency

- Range: 100 kHz to 20.0 GHz
- RF Input Impedance (type-N connector): 50Ω
- Calibrated Streaming I/Q: 5 kHz to 40 MHz of selectable I/Q streaming bandwidth
- Up to 2 seconds of Calibrated I/Q Capture at 160 MHz bandwidth
- Includes an internal GPS, used for time base synchronization, I/Q time stamping, and GPS positioning
- Resolution Bandwidths (RBW): 0.1 Hz ( $\leq 200\text{kHz}$  span) to 3 MHz (any span) using 40 MHz IBW; 30 kHz to 10 MHz using 160 MHz IBW
- Timebase Accuracy: GPS disciplined OCXO remains within  $\pm 5 \times 10^{-10}$  when locked to GPS;
  - holdover of  $\pm 5 \times 10^{-9}$  per day for aging;
  - holdover of  $\pm 1 \times 10^{-8}$  for temperature over  $-40^{\circ}\text{C}$  to  $60^{\circ}\text{C}$

## MICROSOFT SURFACE BOOK 3

Each ComSec Kestrel Surface RF Locator Kit comes equipped with a Ruggedized Microsoft Surface Book 3 with performance base.

### Microsoft Surface Book 3 Technical Specifications:

- Intel Core i7 Processor
- 16GB RAM
- 1TB Storage Hard Drive
- Charger

With the versatility of the Surface Book 3, you have multiple methods of interacting with the Kestrel TSCM Pro Software, including:

- As A Laptop
- Remove Keyboard To Use As A Tablet
- Reverse Keyboard, Attach, & Use As Tablet
- Partially Open To Create Standing Tablet

### Ruggedized Features:

- Armorshell and impact resistant bumpers
- Dual lock secure screen closure
- Cooling vents for uncompromised airflow
- Protective tactile spine
- Surface Pen holder
- Compatible in laptop and clipboard mode
- Meets military drop-test standards (MIL STD 810G 516.6) when attached to base

## KESTREL LOG PERIODIC ANTENNA KIT

Included in each Kestrel Surface RF Locator Kit is the Kestrel Log-Periodic (KLP)<sup>™</sup>. It is a dual-polarized, wideband, high-gain, directional antenna.

The Kestrel Log Periodic (KLP)<sup>™</sup> offers an exceptional Design Frequency Range (DFR) of 680 MHz to 6 GHz, which translates into a real-world (Rx only) Near-Field Characterization (NFC) or TSCM operational capability well below 10 MHz and greater than 10 GHz. This makes it ideal for both indoor and outdoor Radio Direction-Finding (RDF) applications by minimizing the complexities of RF reflections and the effects of multi-path anomalies associated with strong Near-Field (NF) signal events.

A key feature of the KLP antenna is our innovative, custom-engineered Quick Connect Mechanism (QCM)<sup>™</sup>, pistol grip, and tripod configuration supporting the antenna as both a tabletop collection antenna and comfortable, light-weight component of the Kestrel Surface RF Locator Kit.

### Kit Contents

- Log-Periodic Antenna (LPA) <sup>™</sup> | 1 Meter Quad Shielded RF Cable | Terminated 50 Ohm SMA (M)
- Kestrel Vision Antenna (KVA) <sup>™</sup> | Omni-Directional (5dBi) | Terminated 50 Ohm SMA (M)
- Quick Connect Mechanism (QCM)
- SMA (M) to SMA (M) Quad Shielded RF Extension Cable
- SMA (F) to SMA (F) RF Adapter
- Technical Operator Set-up and Operation Manual
- Soft Storage Pouch

## ORDERING INFORMATION

To order the Kestrel Surface RF Locator Kit, please request a quote via email to [ImI@COMSECLLC.com](mailto:ImI@COMSECLLC.com). If you have any questions, please call (800) 615-0392 or visit [COMSECLLC.com](http://COMSECLLC.com).

### Include the following information in your request:

- Kestrel Surface RF Locator Kit model.
- The quantity.
- Required delivery date.
- Company/Agency name and address.
- Point of contact's name, email address, and phone number.