

SNAP Baseband Overview

Product Line Introduction

The SNAP Rack/Stack Baseband and SNAP Embedded Baseband designs are based on proven components efficiently integrated into the smallest physical footprint possible without compromising performance in a variety of application environments. They both contain the same router, accelerator, and HAIPE-compliant encryption device. The SNAP Rack/Stack Baseband facilitates easy removal and replacement of these items, while the SNAP Embedded Baseband consolidates these items into the smallest practical package. Both packages allow for physical separation between NIPR and SIPR equipment and support HAIPE-compliant, Type-1 encryption.

Specifications	SNAP Rack/Stack Baseband	SNAP Embedded Baseband
HAIPE Compliance	Yes	Yes
Router	Cisco 2811 (NIPR/SIPR)	Cisco 2811 (NIPR/SIPR)
Advanced IP Services		
Encryption	KG-175D	KG-175D
Cache and Compress Acceleration	WANScaler (NIPR/SIPR)	WANScaler (NIPR/SIPR)
TCP Acceleration	WANScaler (NIPR/SIPR)	WANScaler (NIPR/SIPR)
Fast ethernet/gigabit ethernet Ports	18 Fast Ethernet and 1 Gigabit Ethernet LAN ports, 2 Fast Ethernet WAN ports (NIPR/SIPR)	18 Fast Ethernet and 1 Gigabit Ethernet LAN ports, 2 Fast Ethernet WAN ports (NIPR/SIPR)
64 Channel packet voice/fax DSP Module	Yes (NIPR/SIPR)	Yes (NIPR/SIPR)
4 Port FXS Card	Yes (NIPR/SIPR)	Yes (NIPR/SIPR)
Cisco Call Manager Express Feature License	Yes: up to 24 IP phones and up to 4 analog phone/fax (NIPR/SIPR)	Yes: up to 24 IP phones and up to 4 analog phone/fax (NIPR/SIPR)
Power Over Ethernet (PoE) Ports	16 (NIPR/SIPR)	16 (NIPR/SIPR)
Dimension, Weight, and Number of Cases	NIPR: 29 x 24 x 11 in., 85 lbs, SIPR: 39 x 24 x 13 in., 120 lbs, Total: 205 lbs; 2 cases	31.3 x 20.4 x 15.5 in. 95 lbs; 1 case
Temperature	0 - 50° C	0 - 50° C

Antenna Power Supply:
Input: 85-265 VAC, 47-63 Hz
Output: 1000 W

General: MTTR: ≤ 30 minutes
Operational Availability: ≥ 99.5%
Warranty: 1 year

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Features and Benefits

SNAP Rack/Stack Baseband

- IPR and SIPR routers each contain 18 fast ethernet and 1 gigabit ethernet ports
- KG-175D sliding rack mount assembly facilitates easy removal and reduces wear and tear on cable assemblies
- Customized interface patch panel provides easy access to user ports and simplifies indoor/outdoor unit connections

SNAP Embedded Baseband

- Compact, lightweight solution in a small footprint with physical Red and Black separation
- Individual components shock-mounted in SIPR/NIPR modules
- Customized power filtering protects against power surges and brown-outs

SIPR NIPR Access Point (SNAP) VSAT Overview



ARSTRAT Ka-band Certified

DSCS X-band Certified



EoIP Communications

Secure, Reliable, Interoperable, Flexible

In response to the Warfighter's requirement for highly portable and interoperable tactical communications access for mission critical data while on remote assignment, TeleCommunication Systems, Inc. (TCS) introduces the SIPR NIPR Access Point (SNAP) Suite of deployable satellite communication products. The SNAP Suite supports communications objectives from Special Operations teams to traditional warfighter requirements with robust scalability and unparalleled flexibility.

The SNAP Suite provides interoperability among three different SATCOM terminals utilizing Ku, Ka and X-band frequencies with L-band service available via the E500 BGAN terminal. It includes three interchangeable baseband solutions as well as an Uninterruptible Power Source (UPS) System and laptop/VoIP phone accessories case to provide the Warfighter with compact, lightweight, highly configurable SIPR/NIPR communications packages. The SNAP Suite maximizes network access with four exchangeable modem solutions to address all custom needs.

Operating in point-to-point, hub and spoke and full mesh configurations, the SNAP Suite offers 64 different configuration options to satisfy the warfighter's requirement for a completely customizable communications package that provides multiple configurations and capabilities in a compact, lightweight, and user-friendly system.

SNAP VSAT Overview

Product Line Introduction

TCS offers 1.2M and 2.0M VSAT terminals featuring a unique pack-in-the-box pedestal design that is lightweight with fewer moving parts. The design incorporates a custom enclosure and electronics that can interface with any baseband package. A simple swap of the feed boom assembly is all that is required to change from Ku to Ka frequencies. Installation of the supplied Beacon Receiver and the X-band feed boom assembly and boom support bracket provides service in X-band frequencies. Utilizing the Thrane & Thrane 500 BGAN terminal expands end-user communications options to include connectivity to the existing INMARSAT BGAN network. The SNAP 1.2M and 2.0M terminals with the SNAP Rack/Stack Baseband and the SNAP Embedded Baseband kits have successfully completed

ARSTRAT Ka-band and DISA Defense Satellite Communications System (DSCS) testing. The terminals were validated as fully interoperable with DOD networks and approved for operation on Government owned Ka-band and X-band space craft. ARSTRAT Certification numbers 11-003 for 1.2M 12watt, 11-004 for 2.0M 12watt, 11-005 for 2.0M 50watt DISA Certification number 11-007 for 2.0M 100watt. Recent non-RF Chain design improvements reduced case count and allowed for a folding split-boom arm design which makes assembly and packing much easier.

Features and Benefits

- Custom Outdoor Equipment Enclosure (OEE) which houses an integrated spectrum analyzer, Trackstar for auto-acquisition, and power
- UPS provides highly reliable power backup and conditioning at 1250VA of nominal 115VAC outputs from an input range of 80-265VAC/47-400HZ or 20-32VDC
- Deployment and setup in under thirty minutes

SNAP Rack/Stack Baseband

Close And Move

- Data:** 16 ports of Power over Ethernet for each classification
Voice: 8 total analog FXS ports NIPR & SIPR functionality out-of-the-box
Weight: 211 lbs (2 cases)

SNAP Embedded Baseband

Ready For Packing

- Data:** 16 ports of Power over Ethernet for each classification
Voice: 8 total analog FXS ports NIPR & SIPR functionality out-of-the-box
Weight: 95 lbs (1 case)

SNAP 1.2M VSAT Terminal

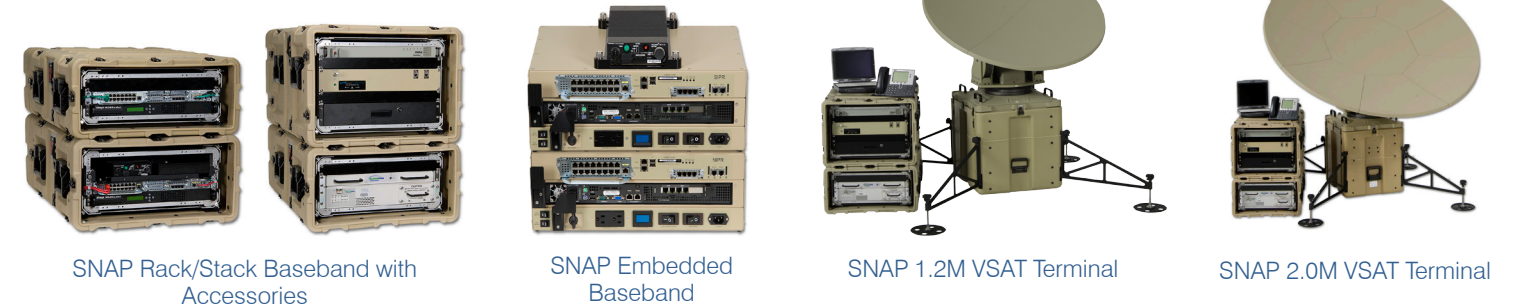
Voice Flexibility

- Voice:** Supports 8 PoE ports per classification and 2 analog phones on the Black (convergence) classification
Encryption: SecNet 54
Weight: 48 lbs (1 case)

SNAP 2.0M VSAT Terminal

Expanded User Ports & Serial IP Data Connectivity

- Data:** 2 serial interface ports (expandable to 4)
Voice: 24 POE Ethernet ports on each classification
Weight: 207 lbs (2 cases)



Specifications	1.2M VSAT Terminal	2.0M VSAT Terminal
EIRP	Ku: 59.2 dBW (@ 14.25 GHz CW) Ka: 61.6 dBW (@ 30.5 GHz CW)	Ku: 65.1 dBW (@ 14.25 GHz CW) Ka: 65.9 dBW (@ 30.5 GHz CW) X band: 62.7 dBW (@ 8.25 GHz CW)
G/T	Ku: G/T of 21.4 dB/K (clear skies @ 11.85 GHz & 20° elevation angle) Ka: G/T of 23.2 dB/K (clear skies @ 20.7 GHz & 20° elevation angle)	Ku: 25.9 dB/K (clear skies @ 11.85 GHz & 20° elevation angle) Ka: 27.6 dB/K (clear skies @ 20.7 GHz & 20° elevation angle) X-band: 21.7 dB/degree K (clear skies @ 7.5 GHz & 20° elevation angle)
Operational Frequency	Ku: Receive: 10.95-12.75 GHz Transmit: 13.75-14.5 GHz Ka: Receive: 20.2-21.2 GHz Transmit: 30.00-31.0 GHz	Ku: Receive: 10.95-12.75 GHz Transmit: 13.75-14.5 GHz Ka: Receive: 20.2-21.2 GHz Transmit: 30.00-31.0 GHz X-band: Receive: 7.25-7.75 GHz Transmit: 7.9-8.4 GHz
Polarization	Ku: Linear Orthogonal configured for cross pol, optional co-pol Ka: Circular including reverse polarization	Ku: Linear Orthogonal configured for cross pol, optional co-pol Ka: Circular including reverse polarization X-band: Circular convertible to RHCP or LHCP (reverse polarization)
Positioning Accuracy	0.1 degree of azimuth, elevation, and polarization	0.1 degree of azimuth, elevation, and polarization
UPS Run Time	5 - 15 minutes, depending on requirements	5 - 15 minutes, depending on requirements
Type Approvals	Intelsat K-2 certification	Intelsat K-3 certification
Wind Loading	30mph Operational Gusts to 45mph	30mph Operational Gusts to 45mph
Temperature	-10° C to +50° C operational -40° C to +60° C (non-operating)	-10° C to +50° C operational -40° C to +60° C (non-operating)
Dimension, Weight, and Number of Cases—2 man lift	Case 1: 26 x 24 x 26 in., 150 lbs Case 2: 43 x 27 x 20 in., 110 lbs Case 3: 39 x 24 x 18 in., (RF Case) 127 lbs Case 4: 39 x 24 x 13 in., (UPS Case) 165 lbs Case 5: 31.3 x 20.4 x 12.2 in., 92 lbs	Case 1: 26 x 24 x 26 in., 174 lbs Case 2: 39 x 24 x 18 in., (RF Case) 127 lbs Case 3: 39 x 24 x 13 in., (UPS Case) 165 lbs Case 4: 25 x 40 x 39 in., (Reflectors) 165 lbs Case 5: 43 x 27 x 20 in., 160 lbs

Uninterruptible Power Source Input AC Range: 80-265 VAC, 47-400 Hz Input DC Range: 22-32 VDC Output: 1250 VA/ 1000 W continuous Operating Temperature: -18° C to 50° C Storage Temperature: -32° C to +66° C Dimension, Weight: 39 x 24 x 13 in., 165 lbs, 1.2M's Case 4 above	RF Equipment Case Modem Type: Linkway LWS2-S2-BPBP Crypto, IDIRECT E8350 Satellite Modem, NCW modem, MIL-STD 188-165A compliant FDMA modems, future JIPM modems Dimension, Weight: 39 x 24 x 18 in., 130 lbs	Frequency Stabilizer Primary Frequency: 10 MHz, Meets MTIE requirement for Stratum-1 primary clock source Long-Term Stability: 1x10 ⁻¹² hours of tracking (Δt=24 hours) Short-Term Stability: 1x10 ⁻¹¹ (Δt=1 second) Accuracy While Coasting: 5x10 ⁻¹⁰ per day after 3 days of locked operation, standard OCXO
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