KS-252 and KS-124

IP Ground Operating Equipment
ECU for TS/SCI Government Applications

The Viasat KS-252/124 IP Ground Operating Equipment (GOE) is the standard for securing Telemetry, Tracking, and Commanding (TT&C) and Mission Data in Satellite Operations Centers (SOCs). The KS-252/124 is configurable for multiple cryptographic functions using industry standard 100Mbps Ethernet interfaces for both data and control. Using compatible industry standard interfaces, the KS-252/124 helps reduce your integration costs and seamlessly integrates into your modern IP networks. These ECUs also enable users to replace their expensive, aging, legacy GOE TT&C equipment with a modern, smaller, lower-cost, and lower-maintenance device. Additionally, the KS-252/124 is software reprogrammable, offering a means to upgrade or modify its functionality for future applications.

Through a software upgrade, the KS-252 V3.0 software brings enhanced networking features to support virtual machines, cloud infrastructures, and automation of multiple small or large satellite constellations. All modern algorithms needed for supporting DoD SOCs with a high capacity for keys enables flexible support for multiple missions with a bank of KS-252/124s configurable to the as-needed mission. Building upon the standard IP interfaces like UDP and IPv4 introduced on earlier software versions of the KS-252, banks of KS-252s with SW V3.0 are now easier to manage across the network with these enhanced features:

- IPv6 in addition to existing IPv4 features to meet DoD IPv6 Standard Profiles for IPv6 Capable Products
- TCP/IP traffic to meet reliability beyond point-to-point networks along with the existing UPD/IP traffic to meet the high throughput point-to-point requirements
- LDAP authentication for single-sign-on to simplify the security management of multiple KS-252s
- SYSLOG client to status back to a single SYSLOG server, which aggregates all messages from all networked devices like the KS-252
- Network Time Protocol client to allow time synchronization of all network devices in the SOC
- Command (CMD) Timestamp and Telemetry (TLM) Timestamp allows for critical time tags to be sent to remote transmitting equipment and received from remote receiving equipment without the need for expensive guards and additional supporting infrastructure

KS-252 AND KS-124 AT-A-GLANCE

	KS-252 V3.0	KS-252 V2.1	KS-124 V2.1
Algorithms			
CAROUSEL	X		
AES-256 (Gryphon compatible)	X		
CARDHOLDER	X	X	
BELSHAZZAR (PEGASUS)	X	X	X
INSCOE (KG-29)		X	
INY (KI-23)		X	
GOODSPEED (KG-29)		X	X
Bypass	X	X	X
Key Formats			
Tier 0 (PET) format	X	X	X
KS-252 in KI-17 format	X	X	X
ACE format	X		
CAROUSEL format	X		
Management			
Web Based	X	X	X
Ground Equipment Monitoring Service (GEMS) MMI	X	X	X
Networking			
IPv4	X	X	X
IPv6	X		
Traffic Formats			
UDP	X	X	X
TCP	X		
Other Features			
LDAP authenication	X		
SYSLOG	X		
Network Time Protocol	X		
TLM Timestamp Bypass	X	X	X
CMD Timestamp Bypass	X		
Command Spacing Bypass	X		
Cipher Text Inversion	X	X	X

Viasat KS-252 and KS-124 Ground Operating Equipment

SPECIFICATIONS

TT&C AND MISSION DATA RATES

UDP Traffic	1 bps to 70 Mbps
TCP Traffic	1 bps to 2 Mbps

RED AND BLACK INTERFACE–ETHERNET

Protocols Supported	UDP (Traffic), TCP/IP (Traffic & RED HMI), IPv4/6, ICMP, ARP, NTP, SYSLOG, LDAP
Electrical/Mechanical	IEEE 802.3; 10/100 Mbps copper, RJ-45

COMSEC CHARACTERISTICS

Flexibility	Reprogrammable architecture
Key Fill Interface	DS-101
Key Formats	Tier 0 (PET), KS-252, ACE, & CAROUSEL
Storage	>2,048 keys
Short Title	Locally and remotely readable
Crypto Ignition Key	CIK removal to UNCLASSIFIED CCI

PHYSICAL

Dimensions (W x H x D)	7.5 x 1.68 x 11.9 in.; 190.5 x 42.7 x 302.2 mm
Weight	6.5 lb; 2.9 kg
With Available AC/DC Power Supply	115 VAC ±10%, 50/60 Hz
Without AC/DC Power Supply	+5 VDC and +3.3 VDC; 13.7 W typical

RELIABILITY AND MAINTENANCE

Predicted MTBF	246,755 hr
MTTR	<15 min
Other	Extensive power up and online BIT

ENVIRONMENT

Operating Temperature	0° to 50° C
Non-Operating Temperature	-20° to 70° C
Operating Altitude	Up to 50,000 ft
Non-Operating Altitude	Up to 69,000 ft
Non-Operating Rapid	27,000 to 69,000 ft in 15 seconds

DECOMPRESSION

Shock

» MIL-STD-810F 516.5 Procedure I SRS curve: 9 to 45 g from 10 to 45 Hz w 6 dB slope, 45 g from 45 to 2000 Hz

Vibration

» MIL-STD-810F 514.5 Procedure I Cat 24: 0.04 g^2/Hz from 20 to 2000 Hz for 15 minutes each on three main orthogonal axes

» MIL-STD-810F, 516.5, Procedure I, ground equipment with a peak acceleration of 40 g

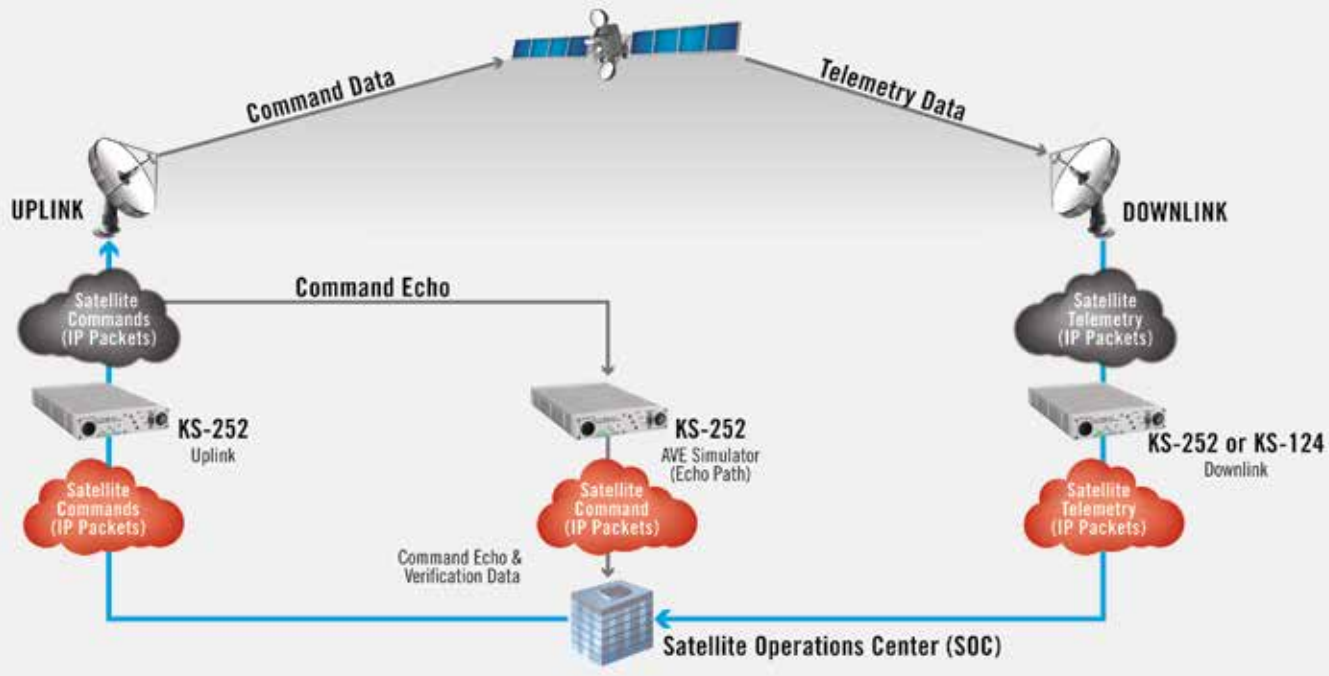
» RTCA-DO-160E, Section 8, Category S, Curve B: 0.012 g^2/Hz for 10 to 40 Hz, 0.012 g^2/Hz to 0.002 g^2/Hz for 40 to 100 Hz, 0.002 g^2/Hz for 100 to 500 Hz, and 0.002 to 0.00013 g^2Hz for 500 to 2000 Hz for 1 hr each on three main orthogonal axes

EMI/EMC	FCC Class B and EN 55022 Class B
Humidity (Non-Condensing)	95% @ -60° C for 96 hr per MIL-STD-810F, Method 507.4

CERTIFICATION

» NSA Certified for TS/SCI and Below

» TEMPEST Compliant NSTISSAM 1/92



CONTACT

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