» NSA Certified Type 1 Layer 2 Ethernet Encryption

» Ethernet Data Encryption - Cryptographic Interoperability Specification (EDE-CIS)

» Conforms with NSA ESS and IEEE Std 802.1AE MACsec (Field Upgradeable to EDE-CIS)

» Proven High-Availability and Near-Zero Latency

» Flexible data rates 1x10, 2x10G, 4x10G, and 100Gbits/s (20 Gbps, 40 Gbps, 80 Gbps and 200 Gbps aggregate)

» Single and Multiple Point-to-Point mode options

The Viasat KG-142 is the first and only 100 Gbps (200 Gbps aggregate) Type 1 MACsec Ethernet encryptor and the first to be certified to the latest NSA certification, the EDE-CIS. The KG-142 is capable of operating at multiple speeds, 20 Gbps to 200 Gbps (aggregate) and Multiple Point-to-Point connections with VLAN ETT. Designed to protect data up to TS/SCI for very high-bandwidth applications, such as data center interconnect, cloud computing and big data processing. The KG-142 encryptor delivers reliable, network-efficient protection for Layer 2 Ethernet communications. Combining decades of experience protecting classified government data with proven innovation in broadband networking, Viasat designed the KG-142 for high-availability and security that keeps pace with mission demands.

Through a field proven software-upgradeable design, Viasat's network encryption product portfolio, the KG-142 is able to evolve over time without hardware changes to meet the latest cybersecurity standards and interoperability such as Enhanced Traffic Flow Security (E-TFS) and EDE-CIS interoperability specification including KMI Aware/PDE Enabled.

The Viasat KG-142 is tested for high-reliability, supporting 99.999% uptime via N+1 redundancy system architectures. With 20 Gbps - 200 Gbps processing power packaged in a slim 1RU box and full remote management via web interface and SNMP, this encryptor simplifies enterprise-to-enterprise and government private cloud encryption for classified communications.

VIASAT KG-142 AT-A-GLANCE
TS/SCI Ethernet Protection

» 100 Gbps (200 Gbps aggregate)

» 1 x 10 Gbps, 2 x 10 Gbps, 4 x 10 Gbps (20 Gbps, 40 Gbps, 80 Gbps aggregate)

» Multiple Point-to-Point with VLAN ETT

» Near-zero traffic latency

» Supports long and short reach optics

» Software upgradeable to EDE-CIS and E-TFS

» Metro Ethernet Forum (MEF) and IEEE compliant frame forwarding

» NTP clock sync

» Syslog support

» Supports Traffic Flow Security (TRANSEC)

» Configurable address filtering to work through bridge applications

» Supports 99.999% reliability via N+1 redundancy system architectures

Hassle-Free Setup and Maintenance

» SNMP and browser-based device management configurations

» VINE Manager™ software provided at no extra cost; centrally manage Viasat Layer 2 and 3 (HAIPE®) network encryptors

» Automated key management

» Supports Link-OAM

» Dual redundant hot-swappable power supplies

» Field-replaceable fans

Primary Applications

» Data center interconnectivity

» Content distribution network

» Big data processing

» Network resiliency, load balancing, and synchronization

» Operational continuity/disaster recovery (data mirroring, remote backup)

SPECIFICATIONS

NETWORKING FEATURES AND PROTOCOLS

Security Protocols Supported
ESS/MACsec: both standard MACsec and single-frame Ethernet Transport Tunnel (ETT) Mode as defined by ESS. ETT mode adds Traffic Flow Security (TRANSEC) to standard MACsec, by protecting red network headers. Field upgradeable to E-TFS and EDE-CIS including KMI Aware/PDE Enabled. Supports EDE-M Single Point-to-Point, and EDE-CC Multiple Point-to-Point modes.

Networking Features
Protects data at Layer 2, supporting any Layer 3 protocol stack (IPv4, IPv6, UDP/TCP/HTTP, etc). Supports Protected tunneling of Red Network VLAN tags. Supports Link-OAM. Supports NTP clock synchronization.

Management
SNMP & HTTPS browser-based management, free VINE Manager® software. Supports Syslog formatted event reporting.

NETWORK INTERFACES

Data Interfaces

» **Industry standard C Form-Factor Pluggable 2 (CFP2) 100 Gbps transceiver sockets**
  ‣ Supports both Long-Reach (LR4) CFP2 and Short-Reach (SR10) optics modules
  ‣ 100G PT and CT ports can be configured independently (e.g. SR10 for PT port, LR4 for CT port)

» **Industry standard Quad Small Form-factor Pluggable+ (QSFP+) 4x10 Gbps transceiver sockets**
  ‣ Supports both Long-Reach (LR4) and Short-Reach (SR4) QSFP+ optics modules
  ‣ 10G PT and CT ports can be configured independently (e.g. SR4 for PT port, LR4 for CT port)

Management Interface

» Electrical/Mechanical: IEEE 802.3; HTTPS/SNMP Interface RJ-45 10/100/1000 Mbps; Console interface RJ-45 Serial

COMSEC CHARACTERISTICS

Algorithms
Type 1 256-bit AES/GCM with 16-byte ICV, ACC*

Key Fill Interface
DS-101

Flexible Keying
Modular, Crypto Ignition Key (removal to unclassified CCI), EKMS, MACsec Key Agreement (MKA) using Dynamic Keying based on pre-placed key (PPK) CAK, Field upgradeable to EDE-CIS including KMI Aware/PDE Enabled*

RELIABILITY AND MAINTENANCE

Predicted MTBF
150,000 hr; Telcordia® SR-332 for benign ground environment

Predicted MTTR
15 min to remove/replace

Other
Extensive power up and online BIT

Fan Bank
Field replaceable

Power Supply
Dual redundant hot-swappable supplies, field replaceable

PHYSICAL

Dimensions (W x H x D)
17.11 x 1.72 x 22.5 in.

Mounting
Industry standard 19 in. wide x 1U High x 24 to 31 in. deep, slide rails

Weight
28 lb

Power
141 Watts; 110 to 240 VAC; 50-60 Hz. Redundant hot swap power supplies

Battery
External user replaceable battery, one "AA" lithium cell, 2 year operating life typical

ENVIRONMENT

Operating Temperature
$-5°$ to $50°$ C

Storage Temperature
$-40°$ to $70°$ C

Humidity
5% to 93% non-condensing

Altitude
-200 to 6000 ft at up to $40°$ C operational

Vibration

» **Transportation—Non Operational**
  ‣ 0.01 g^2/Hz [10Hz-200Hz]
  ‣ 0.003 g^2/Hz [200Hz-1100Hz]

» **Installed—Operational**
  ‣ +12 dB/octave [5-10 Hz]
  ‣ 0.00042 g^2/Hz [10-50 Hz]
  ‣ −12 dB/octave [50-100 Hz]

Shock
Earthquake, Telcordia GR-63-CORE, Section 5.4.1, Zone 4

EMI/EMC
Telcordia GR-1089-CORE, ID 8, Table 3-1—Radiated emission

CERTIFICATION

NSA Certified Type 1 Layer 2 Ethernet Encryption
R1.1 - NSA Certified Type 1 Layer 2
R1.2 - NSA Certified Type 1 Layer 2