

Quantum Safe Ethernet Encryptor

Secure Ethernet Communications



The Quantum Safe Ethernet Encryptor delivers high assurance Layer 2 protection for mission critical data in transit. Built on FPGA architecture, it combines ultra low latency and high throughput with Post-Quantum Cryptography (PQC) and third-party Quantum Key Distribution (QKD) support, safeguarding sensitive communications against current and emerging quantum threats.

Designed for FIPS 140-3 Level 3 and Common Criteria validation, it integrates tamper resistance, active zeroisation, anomaly detection and Security Operations Centres (SOCs) integration. Supporting point to point and multipoint deployments, it strengthens cyber resilience across government, critical infrastructure, financial services and ICS/OT networks while maintaining operational performance.

KEY CAPABILITIES



Quantum Safe Protection

Supports PQC and third-party QKD to strengthen protection against current and emerging quantum threats.



High Speed Layer 2 Encryption

FPGA-based encryption delivers up to 100 Gbps protection for mission critical network communications.



High Assurance Security

Designed to meet FIPS 140-3 Level 3, with tamper detection and active cryptographic zeroisation.



Centralised Management

Enables remote monitoring, audit logging, alarm reporting and centralised management of deployed encryptors.

TECHNICAL HIGHLIGHTS



100 Gbps

Encryption performance.



Layer 2

Network encryption.



PQC + QKD

Quantum safe technologies.



FIPS 140-3 Level 3

Designed to meet.



1U

Rack mount form factor.



100 / 10 / 1 Gbps

Network connectivity.



SPECIFICATIONS

Quantum Safe Ethernet Encryptor

Performance	• 100 Gbps
Network Interfaces	• 4x 100 Gigabit ethernet ports (2x Trusted, 2x External) with QSFP28 interfaces • 8x 10/1 Gigabit ethernet ports (4x Trusted, 4x External) with SFP+ interfaces
Cryptography	• Confidentiality, integrity and replay protections • Advanced Encryption Standard (AES256) • Galois Counter Mode (GCM) encryption algorithm • Hardware Random Number Generator (HRNG) • Supports PQC and third party QKD
Key Management	• Proprietary key management system's • Parameter loading using smartcard / laptop
Device Management	• OOB management port: 1 x 1Gbps Ethernet RJ45 for remote monitoring configuration • Key Load port: 1 x 1Gbps port with SFP interfaces • QKD port: 1 x 1Gbps port with SFP interfaces • Local CLI console port
Physical Security	• Tamper resistant chassis • Tamper detection and response • Active zeroisation of cryptographic data upon tamper detection • High temperature detection
Operating Environment	• Operating temperature: 0°C to 40°C • Storage temperature: -10°C to 50°C • Humidity: Relative 10% to 80%, non-condensing • EMI/EMC: FCC Part 15 Class A / EN50082-1
Physical Characteristics	• Dimension: 1U height, fits 19" rack • 44mm H, 430mm W, 382mm D • Weight: 10Kg • Redundant hot-swap PSU module options: 1) 100 to 240V AC @ 50/60Hz 2) -36 to -75V DC, 250W (Max)
Networking Features & Protocols	• Ethernet Layer 2 encryption • Support for jumbo frames up to 9596 bytes, point-to-point, multipoint-to-multipoint
Security/Configuration	• Designed to meet FIPS 140-3 Level 3 • Element Management System with 2FA authentication • Management through NetConf protocol • Audit logging, Alarm detection and reporting
Key Management System (KMS)	• Key Generation System for keys parameter generation
Smartcard	• Configuration card for cryptographic key parameters
Element Management System (EMS)	• Web-based application that manages deployed encryptor connected to the network, including inventory and control, service information, faults, and monitoring of equipment and its transmission capabilities.

