

Quantum Safe IP Encryptor

Secure IP Networks



The Quantum Safe IP Encryptor delivers high assurance Layer 3 encryption for secure communication across distributed and mission critical networks. Combining hybrid post-quantum cryptography (PQC) with Zero Trust architecture, it strengthens cyber resilience while maintaining interoperability with existing IP infrastructure.

Engineered for future ready network protection, Quantum Safe IP Encryptor integrates ML-KEM-1024 in hybrid mode, IKEv2 with Perfect Forward Secrecy (PFS), ECDH up to P-521, AES-256 encryption and certificate-based authentication. Built-in firewall, Anti-(D)DoS resilience, secure remote management and hardware backed security provide layered protection.

Available in 10G/1G throughput, mini, compact and ruggedised models, Quantum Safe IP Encryptor supports deployments from mobile users and branch offices to defence and field environments.

Model	Encrypted Throughput	Tunnels	Primary Deployment
10G/1G	Up to 10 Gbps	Up to 1000	Data Centre / Backbone
Compact	Up to 200 Mbps	Up to 80	Branch offices and enterprise edge
Ruggedised	Up to 200 Mbps	Up to 80	Defence, vehicles and field environments
Mini	Up to 80 Mbps	Up to 2	Mobile users and autonomous systems

KEY CAPABILITIES

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Hybrid Post Quantum Protection
 Combines ML-KEM-1024 with established cryptographic mechanisms for quantum resilient IP communications.
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Zero Trust Security
 Continuous verification, certificate-based identity and authentication strengthen access to protected networks.
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Secure VPN Connectivity
 IKEv2 with enforced PFS and high strength ECDH protects site to site and remote communications.
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Integrated Network Defence
 Built-in firewall, packet filtering, NAT/PAT and Anti-(D)DoS resilience provides layered network protection.
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Hardware Backed Security
 Secure hardware protects cryptographic assets, complemented by tamper protection and emergency erase capabilities.

TECHNICAL HIGHLIGHTS

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Post-Quantum Cryptography (PQC)
 ML-KEM-1024 hybrid mode
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Key Exchange
 IKEv2 with enforced Perfect Forward Secrecy
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Classical Cryptography
 ECDH up to P-521; AES-256
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Network Security
 Firewall, packet filtering, NAT/PAT, Anti-(D)DoS
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Interoperability
 Secure VPN connectivity across the QSIP product family

SPECIFICATIONS

Quantum Safe IP Encryptor

		10G Throughout	1G Throughout	Compact	Ruggedised	Mini	
Physical Dimensions	Height	44mm	44mm	44mm	44mm	20mm	
	Width	430mm	430mm	320mm	420mm	50mm	
	Depth	450mm	450mm	285mm	285mm	100mm	
	Weight	10kg	10kg	3kg	5kg	200g	
Power			400W 1U redundant power supply	28V DC Input	External 18-32VDC, 100-240VAC Adaptor, 2.2A 50/60 Hz (60W nominal)	5V DC Input	
Interface Connectors	Trusted Port	2 x SFP+ Cage		2 x RJ45		1 x RJ45	
	External Port	2 x SFP+ Cage		2 x RJ45		1 x RJ45	
	Management Port	1 x RJ45				—	
	System Integrator Port	1 x RJ45				—	
	Display Port	1 x HDMI		—			
User Interface				LED Indicators			
Design with					Emergency Erase Button		Factory Reset Button
Reliability				Calculate MTBF at ground Benign (25°C) is 30,000 hrs			
Throughput (Aggregated total throughput)		Up to 10Gbps	Up to 1Gbps	Up to 200Mbps	Up to 200Mbps		Up to 80 Mbps
Concurrent IPSec Tunnels		Up to 1000	Up to 300	Up to 80			Up to 2
Key Management		- Support IKE v2 (PFS enforced) - ECDH (up to P-521 bit) - ML-KEM-1024 (hybrid PQC mode)					
High Availability Features		Load distribution through IKE re-redirection gateway within VPN gateway					—
Authentication		- Certificate based digital signature (RSA / ECDSA) - Dual authentication (user and device)					
Access Control		- Granular certificate criteria identification matching - Active Directory Group Management					
Data Protection		- AES-256-CBC with HMAC-SHA2/3 (256, 384, 512 bits) - AES-256-OCB (AEAD) - Custom IKE Enc & ESP AEAD Algo					
Management Security / Configuration		- Remote Device management (via Mgt port) - Mutual TLS 1.3 Role based (authentication by cert)					
Security Features		- Anti-(D)DOS - Zero Trust Architecture - Hardened Kernel & Key Exchange					—
		Employs a secure element with Common Criteria EAL 6+ and FIPS 140-3 Level 4 physical security certifications					

SPECIFICATIONS

Quantum Safe IP Encryptor

	10G Throughout	1G Throughout	Compact	Ruggedised	Mini
Environment	Operating	0°C ~ 45°C		-10°C to 55°C	0°C ~ 45°C
	Storage	-20°C ~ 70°C		-20°C to 71°C	-20°C ~ 70°C
	Humidity	45°C, Relative 93% RH ± 3% RH, non-condensing		—	45°C, Relative 93% RH ± 3% RH, noncondensing
	Vibration	Sinusoidal Vibration, IEC Standard		Ground: - MIL-STD-810E, Method 514.4, Category 8, Procedure I, Table 514.4AII (Composite wheeled vehicle random vibration profile) - Test Duration: 1 hr per axis - No. of Axis: 3 axes	Sinusoidal Vibration, IEC Standard
	EMI/EMC	FCC: CE & RE	FCC Class 15B: CE & RE	Ground: - MIL-STD-461E Ground, - Army test requirements	FCC Class 15B: CE & RE
	Shocks	—		- MIL-STD-810G Method 516.6, Procedure I - Test Level: 20g 11ms, terminal sawtooth - No. of Axis: 3 axes - No of Shock: 3 shock per axis in the +ve & -ve directions for 18 shocks	—

