

# MAGIQ QPN™ 8505 Security Gateway Uncompromising VPN Security™



## Carrier Class Network Security

- Quantum Key Distribution
- Key refresh rate up to 100 256 bit keys a second
- Intrusion Detection
- Always-on base VPN
- Data protection with best of breed encryption technologies
- In-transit data security
- Network compatibility
- Implements industry standards BB84, 3DES, AES
- Integrated encryption and Quantum Key Distribution in one enclosure
- Quantum Key Distribution compatible with DWDM
- Low total cost of ownership
- Core
  - Backbone connections between Points of Presence (PoPs) or Network Access Points (NAPs)
- Edge
  - Access to Storage Area Networks (SANs)
  - Inter-NAP/PoP Customer to PoP
- Metro
  - Intra-campus or intra-city rings

## Applications

- Communication Infrastructure Service Providers
- Financial Services
- Military/Government
- Homeland Security
- Other High-Intellectual-Property Industries, e.g. Electronics, Medical
- Disaster Recovery

## OVERVIEW

Technology companies have responded to heightened requirements for information security with an avalanche of new cryptography products. As sophisticated as these solutions are, they have this in common: they all rely on computational difficulty as the source of their protection and none can escape the fact that information security that relies on computational difficulty is ultimately vulnerable.

Breaking through to information security that's NOT VULNERABLE means breaking new ground. Breaking with the tradition of refining current solutions; finding new directions; pioneering completely new technologies that can't be threatened by the next new chip or the next new software algorithm: that's been the mission of MagiQ Technologies since 1999.

## *Presenting MagiQ QPN™ Security Gateway Quantum Key Distribution (QKD) System.*

## MAGIQ QPN™ SECURITY GATEWAY

Unlike traditional cryptography based security approaches, MagiQ QPN™ Security Gateway is a highly-compatible, hardware-based, VPN security solution built on quantum cryptography. Quantum crypto utilizes a completely different computing paradigm from traditional cryptography. No matter what advances occur in computing and algorithms, quantum encryption can never be broken.

MagiQ QPN™ leverages the Heisenberg Uncertainty Principle to exchange encryption keys with absolute security — Quantum Key Distribution (QKD). QKD's intrusion detection solves eavesdropping issues that elude conventional information security systems. Any attempt to observe, read, copy or clone an encryption key will be detected by MagiQ QPN.

MagiQ QPN™ Quantum Key Distribution solves the problem of refreshing encryption keys regularly. "Stale" keys are the unspoken Achilles' heel of most security solutions due to the prohibitive operational, procedural

and technological overhead that's required to refresh them. MagiQ QPN™ refreshes keys as often as 100 times per second by incorporating real-time, continuous, symmetrical quantum key generation based on truly random numbers.

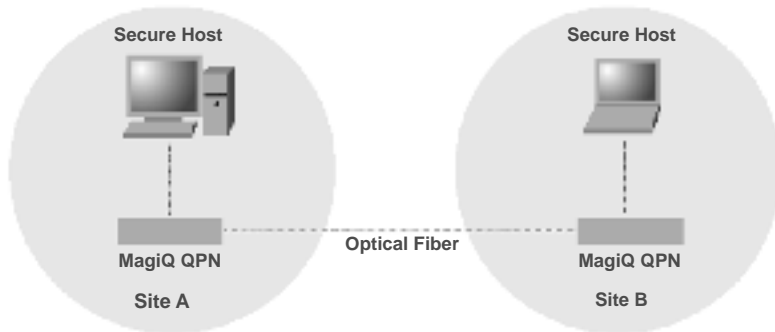
## SUMMARY

MagiQ QPN™ Security Gateway is the first commercial implementation of quantum cryptography. MagiQ's QPN™ combining the best of quantum and classical cryptography provides future-proof technology for your security needs.



“Quantum key distribution is a major paradigm shift in the development of cryptography. The ability to detect eavesdropping on a communications link with absolute certainty is remarkable and conventional and quantum cryptography are a powerful combination in making secure communications a reality.”

Burt Kaliski, Chief Scientist, RSA Laboratories



#### MAGIQ QPN™ SECURITY GATEWAY AT WORK

Tamper-proof security for the information on an organization’s private networks ranks high on today’s priority lists. What are your criteria for a winning VPN security solution?

- Automatic detection of security breaches?
- Automatically refreshed encryption keys?
- Always up to date?
- Protection against future advances in computing?

That’s MagiQ QPN™ at work.

#### PUTTING QUANTUM MECHANICS TO WORK ON YOUR VPN SECURITY

When the transactions and information on an organization’s private networks need the highest levels of security, lock down critical data channels with MagiQ QPN™ Security Gateway. MagiQ QPN™ combined with classical security products assures overall network security, whether it’s an in-house private network or one provided by a telecom carrier.

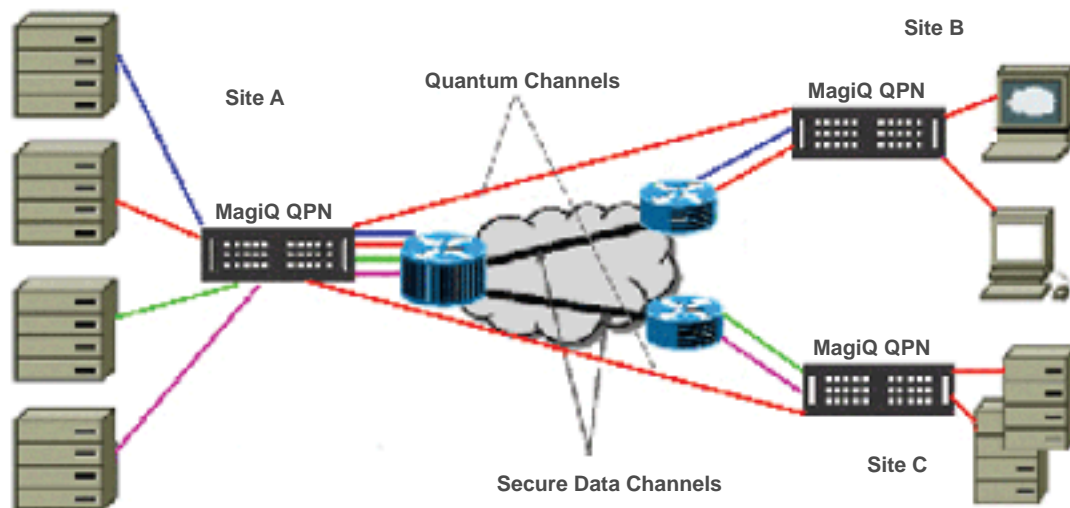


Figure 2: MagiQ QPN Security Gateway: Multi-Site Network Security

## DETECTING SECURITY THREATS BEFORE SECURITY IS THREATENED

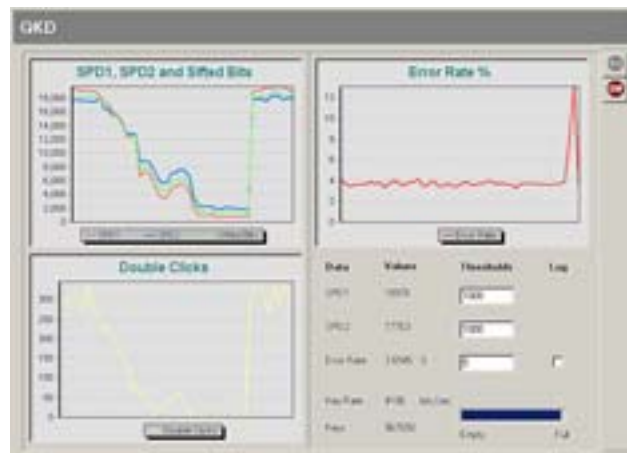
MagiQ QPN™ embodies a proactive and pre-emptive approach to security threats. Because of QKD, any attempt to eavesdrop will be detected and any security breaches will be pre-empted. So, corrective actions can be taken long before encryption is compromised, information is exposed, or systems are accessed.

The MagiQ QPN™ console clearly shows the impact of unauthorized eavesdropping attempts.

Figure 3: MagiQ QPN™ Security Gateway



Secure State



Threat Detected

## MAGIQ QPN™ SECURITY GATEWAY: FAQs

Breakthrough technologies trigger lots of questions. So does MagiQ QPN™. Here's a primer on MagiQ QPN™ integration with existing technology infrastructures:

**Q:** Is MagiQ QPN™ compatible with PKI?

**A:** Yes. MagiQ QPN™ can be integrated into PKI.

**Q:** What is MagiQ QPN™ Console?

**A:** MagiQ QPN™ Console provides secure remote monitoring and management for MagiQ products.

**Q:** What is the maximum point-to-point distance over which MagiQ QPN™ can be deployed?

**A:** MagiQ QPN™ can span 100 kilometers with absolute security or 140 kilometers with decoy state architecture (DSA).

**Q:** Can MagiQ QPN™ extend deployment beyond 100 kilometers?

**A:** Yes. By cascading QKD spans, MagiQ QPN™ can economically support long-haul applications .

**Q:** Does MagiQ QPN™ function over fiber installed next to train tracks or power lines?

**A:** Yes. MagiQ QPN™ works on any commercial fiber.

**Q:** How many strands of fiber are required for QPN™ to operate?

**A:** QPN™ supports multiplexing the quantum and data channels over one fiber.

**Q:** Does MagiQ QPN™ require newer, special fiber?

**A:** No, MagiQ QPN™ can use any standard telecom fiber.

**Q:** What are MagiQ QPN™'s data latencies?

**A:** Up to tens of microseconds.

**Q:** What is the physical interface for the data being transferred?

**A:** MagiQ QPN™ 8505 has up to 16 RJ45 interfaces (supporting up to 8 full duplex 10/100/1G tunnels)

**Q:** Is MagiQ QPN™ compatible with existing WDM networks?

**A:** Yes, MagiQ QPN™ can be deployed on existing WDM networks.

**Q:** Is MagiQ QPN™ government-certified?

**A:** MagiQ QPN™ is planned for FIPS 140-2 Level 3 certification.

MagiQ QPN™ will also be submitted to Common Criteria once it has passed FIPS.



## MAGIQ QPN™ SECURITY GATEWAY 8505

MagiQ QPN™ combines traditional VPN security technology and Quantum Key Distribution. QPN™ 8505 provides an always-on, industry-standard, IPSec site-to-site VPN connection. The MagiQ QPN™ key exchange layer is also a combination of the best traditional and quantum key exchange technologies. Thus, an eavesdropper has to be able to break through both technologies to gain access to the data.

## MAGIQ QPN™ SECURITY GATEWAY TECHNICAL SPECIFICATIONS

MagiQ QPN™ 8505 will ship with a set of industry standard protocols including BB84, IPSEC based VPN and AES. MagiQ QPN™ is housed in a tamper-evident chassis.

### MAGIQ QPN™ SECURITY GATEWAY 8505

- Full optical layer of QKD with Transmitter & Receiver
- Best of breed optical & electronics components
- Real-time, continuous, symmetrical quantum key regeneration
- Key refresh rate up to 100 keys/second
- True Random Number Generator
- 100 km transmission distance
- 140 km transmission distance with decoy state architecture (DSA)
- Compliant with industry standards BB84, 3DES, AES

### QKD SECURITY

- 256 bit AES QKD
- Decoy state available

### INTERFACES

- Up to 16 RJ45 interfaces
- FC single mode fiber interfaces
- Management: 10/100 Ethernet

### PHYSICAL

- Tamper-evident chassis
- Footprint: 7" H x 19" W x 24" D
- Rack mountable in standard 19" rack
- Power: 115-230 VAC, 50-60 Hz, -48 VDC
- Weight: 40 lbs.

### ENVIRONMENTAL

- Operating Temperature: 10° to 35° C (50° to 95° F)
- Operating Humidity: Up to 95% non-condensing

### REGULATORY

#### Emissions:

- FCC Class A
- BSMI Class A
- CISPR Class A
- VCCI Class A

#### Safety:

- UL
- CSA
- CE
- VDE
- IEC 60950 (UL)
- CSA-C22.2 No.60950-00
- EN 60950 for the participating European nations
- EN 60950 for all country deviations
- Class 1 laser safety

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### ABOUT MAGIQ TECHNOLOGIES, INC.

MagiQ Technologies ([www.magiqtech.com](http://www.magiqtech.com)) is the quantum information processing (QIP) company. Through its unique blend of science, business and engineering expertise, the Company is the first to commercialize the advancements in quantum information to benefit forward-looking organizations seeking competitive advantage through technology. Founded in 1999, MagiQ is a privately-held company headquartered in New York City with research & development laboratories in Somerville, Mass.

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