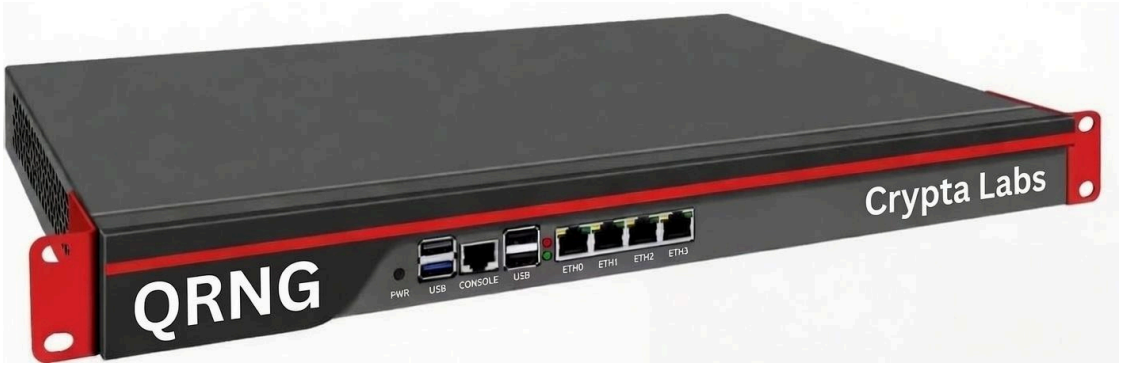
Crypta Labs QRNG Appliance

1U Quantum Random Number Generator · Gen 2

High Performance. Network Ready. Quantum Source Entropy.

Crypta Labs introduces the QRNG Appliance Gen 2 - a rack-mount data centre appliance that delivers high-quality quantum entropy over the network, powered by our Dragonfly PCIe QRNG.



Data centre entropy, ready to deploy

The QRNG Appliance Gen 2 streams quantum random numbers at up to **280 Mbps** from an integrated Dragonfly QRNG PCIe card. Hardened appliance Linux, HTTPS API, and console configuration make it ideal for data centres and enterprise racks that need **next level performance** without embedding PCIe cards in every host.

Cutting edge QRNG technology

Crypta Labs Quantum Optics Module (QOM) utilises a light source and photon detector calibrated to measure quantum noise. Raw noise is processed by our **QEngine technology**, performing real-time health tests and post-processing designed for minimal performance loss from photon capture to delivery. Output quality is aligned with **NIST SP 800-90B** design criteria, with hybrid post-quantum TLS (**FIPS 203 / ML-KEM**) available on the network interface.

Quantum Powered	**Network Appliance**	**High performance**	**Rack Ready**
Dragonfly PCIe QRNG with Quantum Optics Module	HTTPS API & status — no PCIe install on every server	Up to 300 Mbps entropy · 10 MiB max request	1U chassis · multi-NIC · console configuration

Tomorrow's technology for a safer today

Current Pseudorandom (PRNG) and many hardware True (TRNG) number generation technologies have intrinsic limitations. PRNGs can be subject to algorithmic attacks. TRNGs can be constrained by throughput and environmental sensitivity.

Our QRNG technology is robust in real environments, with health monitoring and calibration techniques that help ensure output quality is never compromised — delivered as a complete appliance for centralised entropy.

- QRNG — Quantum entropy over Ethernet
- Health Monitoring — Real-time quality checks
- NIST Aligned — SP 800-90B design · FIPS 203 hybrid TLS
- Data Centre Form Factor — 440×48×257 mm · ears to 480 mm

Market leading adoptability

With a specification built for connected infrastructure and security platforms, the QRNG Appliance Gen 2 deploys as a standard 1U network device — making shared quantum entropy for your cluster or security estate straightforward.

Quantum Optics Module technology, continuous entropy pooling, and a hardened HTTPS API produce usable random output that meets the needs of high-throughput customers without rate limits on the entropy endpoint.

Why Choose Crypta Labs?

- Best quality RNG output — quantum optical source
- Independently verified QRNG quality lineage
- Designed and built for tomorrow's threats
- Designed for use in the real world
- Health monitoring at the core of the design
- Centralised entropy for many hosts over the network
- Hybrid post-quantum TLS on the appliance interface
- Built in line with NIST design standards
- SKU QRNG-APPLIANCE-2 — factory-built, supportable

Device Specification

Model	QRNG Appliance Gen 2 (QRNG-APPLIANCE-2)
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Performance	Up to 280 Mbps raw quantum entropy (~1M × 256-bit blocks per second*)
Entropy pool	32 MiB base, dynamic scaling to 64 MiB
Max API request size	10 MiB per request · no rate limiting
NIST design alignment	Hardware to SP 800-90B criteria; hybrid PQC TLS (FIPS 203)
QRNG quality	Quantum Optics Module · independent verification lineage
API / access	HTTPS · /api/v1/random · /status · /health · /metrics
OS & stack	Hardened Alpine Linux · Caddy TLS · FastAPI entropy service
Management	Physical console · qrng-config (network / hostname / DNS / pool)
Network	4 x 2.5 Gigabit Ethernet ports
Entropy source	1 × Crypta Labs Dragonfly PCIe QRNG (Quantum Optics Module)
Electrical Certification	EMC 2014/30/EU (CE)
Physical	
Form factor	1U rackmount
Chassis (W × H × D)	440 mm × 48 mm × 257 mm
Width with rack ears	480 mm
Package includes	EU power cable · rack ears · ear screws (rack screws not included)
Interface	
Data plane	HTTPS (TLS 1.3) on port 443
PCIe (internal)	Dragonfly Gen2 ×1 QRNG card

*Assumes random numbers of 256 bits derived from continuous quantum entropy stream.
The information in this sheet is subject to change and is for illustrative purposes only.