

PRODUCT BRIEF



SafeNet Ethernet Encryptor CN4020

Cost Effective, High-Performance Encryption

As the latest entry to the CN4000 series of desk-top encryptors, the SafeNet Ethernet Encryptor CN4020 by Gemalto provides an optical interface and high-assurance FIPS and Common Criteria certified encryption over Ethernet at full line rate speeds. The CN4020 is a versatile and simple to use platform that is user configurable to provide highly secure, full line rate encryption over Ethernet for a range of Fibre to the x (FTTx) configurations. A purpose built hardware encryption solution, it ensures low cost, high-efficiency Ethernet encryption, utilizing cutting edge high performance, optical interface connectivity, low voltage electronics to provide wire speed encryption of all voice, video and data communications. In a compact desktop profile, the CN4020 is designed as an entry-level High Speed Encryption (HSE) solution for commercial Small to Medium Enterprise (SME) sector customers or larger organizations with optical interface network needs up to 1 Gbps; and is also suited to widely distributed computing environments and multiple branch office locations.

Performance

The CN4020 is a highly secure encryptor, operating in full duplex mode at 100/1000Mbps full line rate Ethernet Layer 2 encryption without any packet loss in point-point, hub & spoke or meshed environments inside a sleek desktop profile (optional rack-mount conversion kit included). As a high-assurance appliance, The CN4020 also has the following benefits:

- > Secure, tamper-proof, dedicated hardware
- > Standards-based encryption algorithms
- > End-to-end, authenticated network encryption
- > Automatic 'zero-touch' encryption key management

Scalability

The 'bump in the wire' design and variable speed licenses up to 1 Gbps make the CN4020 easy to install and highly cost effective. "Set and forget" simplicity and network transparency are underlying design themes, ensuring easy implementation, operation and management, and minimal resource requirements.

The CN4020 is fully interoperable with the SafeNet High Speed Encryptor family of products, enabling customers to standardize on one platform to secure network data in motion. In addition to the CN4020's optical interface, it also includes an optional electrical (copper) interface converter to provide a future-ready solution for customers currently using copper, to meet a broad range of FTTx scenarios.

Why CN4020 Encryptors?

Trusted Security

- > True end-to-end, authenticated encryption
- > State-of-the-art automatic zero-touch key management
- > Designed for FIPS 140-2 L3, Common Criteria, NATO, UC APL
- > Preferred by market leading commercial and government enterprises in over 35 countries

Maximum Network Performance

- > Microsecond latency (<10 µS)
- > Near-zero overhead
- > Self-Healing capabilities for maximum up time

Scalable and Simple

- > Point to Point, Hub and Spoke and Full Mesh
- > Fully auditable alarm and event logs from 3rd party management tools

Certified Security

The tamper resistant CN4020 is certified Common Criteria and FIPS 140-2 Level 3, and supports standards based, end to end authenticated encryption, automatic key management, and utilizes robust AES 256-bit algorithms. In order to future proof the appliance, the encryptor is compatible with Quantum Key Distribution to guarantee secure communication between devices.

Metro Ethernet or Wide Area Ethernet Services

With the pervasive growth of Ethernet FTTx services, CN4020 is the ideal solution for all organizations with branch and remote locations from small to large enterprises and government or service provider clouds.

The CN4020 addresses the need for high security assurance, highly resilient line-rate encryption of Ethernet traffic across both dark fiber and metro or wide (MAN and WAN) area Ethernet services. Its cut-through architecture processes data frames as they are received to ensure consistent low latency.

Supporting over 500 concurrent encrypted connections, the CN4020 operates at full line speed without packet loss to ensure the confidentiality of encrypted data regardless of frame size or application.

State-of-the-Art Key Management

The CN4020 removes reliance on external key servers and provides a robust fault-tolerant security architecture and tamper-resistant chassis. Physical and virtual separation of duties ensures that only authorized users can access the keys. Encryption keys are generated and stored securely in hardware within the device's tamper-resistant enclosure, and any unauthorized attempts to physically extract the keys will result in device zeroization.

User-Friendly Encryptor Management

SafeNet High Speed Encryptors are easily managed through a simple to use local and remote encryptor management application that provides users with comprehensive and intuitive management functionality. The encryptors can be securely managed either out-of-band — using a dedicated Ethernet management interface or in-band — using the encrypted Ethernet port. Local management using a command line interface is available via a serial console connector.

TACAS+ and RADIUS protocols are supported to allow for Authentication, Authorization, and Accounting (AAA) operations. This provides end users with additional flexibility and security for day to day operations and large scale deployments.

The built-in operational flexibility provides customers a choice and avoiding additional costs of third party optical transport equipment in their network (e.g. OTN provider backbone).

Specifications

Cryptography

- > AES 128 or 256 bit key X.509 certificates
- > Fully compliant with Public Key Infrastructure (PKI)

Device management

- > Dedicated management interface (out-of-band)
- > Or via the encrypted interface (in-band)
- > SNMPv3 remote management
- > IPv4 & IPv6 capable
- > Alarm, event & audit logs
- > Command line serial interface

Installation

- > Desktop and rackmount kit included
- > Size: (WxHxD) - (W:180mm/7.1", D:126mm/5.0", H:32mm/1.3")
- > Weight: 0.5kg /1.1 lbs.

Interfaces

- > SFP interfaces
- > Serial console at 8-pin Modular Jack
- > RJ45 LAN connectors

Power Requirements

- > DC input 12V DC, 7W consumption
- > AC plug pack 100-240V AC; 60-50Hz; 0.7A

Physical Security

- > Active/Passive tamper detection and key erasure
- > Tamper evident markings
- > Anti-probing barriers

Regulatory

- > EN 60950-1 (CE)
- > IEC 60950-1 Second Edition
- > AS/NZS 60950.1
- > UL Listed
- > EMC (Emission and Immunity)
- > FCC 47 CFR Part 15 (USA)
- > ICES-003 (Canada)
- > EN 55022 (CE)
- > AS/NZS CISPR 22 (RCM)
- > EN 61000-3-2 (CE)
- > EN 61000-3-3 (CE)
- > EN 55024 (CE)

Environmental

- > RoHS Compliant
- > Max operating temperature: 40°C /104°F
- > 0 to 80% RH at 40°C/104°F operating

All specifications are accurate as at the time of publishing and are subject to change without notice.

CN4020 Encryptor At-A-Glance

MODEL	CN4020
Protocol	Ethernet
PROTOCOL AND CONNECTIVITY:	
Maximum Speed	1 Gbps
Support for Jumbo frames	✓
Protocol and application transparent	✓
Encrypts Unicast, Multicast and Broadcast traffic	✓
Automatic network discovery and connection establishment	✓
SECURITY:	
Tamper resistant and evident enclosure, anti-probing barriers	✓
Flexible encryption policy engine	✓
Per packet confidentiality and integrity with AES-GCM encryption	✓
Automatic key management	✓
Automatic key management	✓
ENCRYPTION AND POLICY:	
AES 128 or 256 bit keys	128/256
CFB, CTR, GCM Encryption modes	✓
Supports optional 3rd party quantum key distribution (QKD)	✓
Policy based on MAC address or VLAN ID	✓
Self healing key management in the event of network outages	✓
CERTIFICATIONS:	
Common Criteria, FIPS	✓
PERFORMANCE:	
Low overhead full duplex line-rate encryption	✓
FPGA based cut-through architecture	✓
Latency (microseconds per encryptor)	< 10µS
MANAGEMENT:	
Front panel LED display notifications	✓
Centralized configuration and management using SMC and CM7	✓
Support for external (X.509v3) CAs	✓
Remote management using SNMPv3 (in-band and out-of-band)	✓
NTP (time server) support	✓
CRL and OCSP (certificate) server support	✓
MAINTAINABILITY/ INTEROPERABILITY:	
In-field firmware upgrades	✓
External plug pack	✓

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