

# COMPACT, COST-EFFECTIVE 10MBPS-1GBPS ENCRYPTION CN4000 SERIES



## WHO SHOULD READ THIS DOCUMENT

Layer 2 Data Networks Managers and Support staff; Data Network Architects, Data Security Managers and staff, Chief Security Information Officers, Data Security Procurement staff.



## KEYWORDS

Layer 2 Data Networks, Network Data Encryption Hardware, High-speed Data Networks, Network Data security, Encryption Data Security, Network Data Encryption, Certified Layer 2 Network Encryptors, Entry Level Network Encryptors, 10Mbps, 100Mbps and 1Gbps Data Encryptors.

# Introducing Senetas CN4000 Series Encryptors – Versatile, high assurance encryptors for Layer 2 network data security without compromise.

## WHY SENETAS CN4000 SERIES ETHERNET ENCRYPTORS?

- > No compromise performance:
  - Near-zero latency
  - Maximum bandwidth
  - Minimum overhead
  - Scalable and flexible
  - Simple to manage
  - Reliability
  - Maximum availability
- > Secure transmission of data through Layer 2 networks.
- > High-performance and ultra-reliable 99.999% up-time data network security.
- > FPGA flexibility:
  - Field Programmable Gate Array chip technology
  - Provides cut-through architecture
  - Enabling customisation
  - Hardware flexibility not enabled by ASICs
- > Senetas high-speed encryptor technology is used by governments, defence forces and commercial organisations in more than 30 countries.

Because both large and small networks are vulnerable to security breaches, all the way to the network edges, Senetas developed the CN4000 series of compact, versatile encryptors for Layer 2 networks.

The CN4000 series is the ideal low cost, high-assurance encryptor range for SMEs. Their compact form factor also makes them an effective “encrypt everywhere” solution for larger enterprises.

The certified, high-assurance Senetas CN4000 series encryptors help ensure that no organisation, large or small, need risk costly network breaches.

The CN4000 series of encryptors deliver cutting edge protection of data, voice and video without compromising network performance.

## THE CN4000 SERIES

Setting a price/performance benchmark, the compact CN4000 encryptors meet more modest network requirements whilst delivering the high-assurance benefits that make Senetas encryptors stand out:

- > Zero network impact
- > Near-zero latency
- > Ease of implementation
- > Interoperability

The Senetas CN4000 series encryptors put leading, high-assurance encryption of Layer 2 network transmitted data within easy, cost effective reach.

## ETHERNET SERVICES

Versatile and scalable, the CN4000 encryptors provide secure, transparent encryption over Ethernet networks in point-to-point, hub & spoke or meshed environments (10Mbps to 1Gbps).

'Bump in the wire' design and variable speed licenses make CN4000 encryptors easy to install and very cost-effective.

Set and forget simplicity of implementation and transparent design themes help minimise resource requirements.

Designed to be testing authority certified, the CN4000 series is tamper proof, employs automatic encryption key management and utilises robust AES-256 bit algorithms.

## METRO WIDE AREA ETHERNET SERVICES

The growth of Ethernet services makes CN4000 encryptors an ideal solution for organisations with multiple branch and remote locations.

CN4000 encryptors provide secure encryption of Ethernet traffic across dark fibre, metro and wide area Ethernet services.

Supporting more than 500 concurrent encrypted connections, the CN4000 encryptors operate at full line speed without compromising network performance.

## SENETAS CN PLATFORM

The CN4000 series confirms Senetas's commitment to robust and certified high-assurance encryption, including more modest customer requirements.

For large enterprise customers with demanding, carrier-grade needs, the Senetas CN platform also provides solutions for 1Gbps to 10Gbps.

## NETWORK ENCRYPTOR & KEY MANAGEMENT

Senetas CN4000 encryptors' key generation and distribution capabilities eliminate reliance upon external key servers and provide robust, fault-tolerant security architecture.

Senetas CN encryptors utilise best in class, 'carrier-grade' encryption key management. CN4000 series encryptors are fully interoperable with all Senetas CN series encryptors.

The Senetas CM7 encryptor management tool provides comprehensive and intuitive remote management. Local management is available via a serial console connector using a command line interface.



CN4010 In-field Encryptor

# What makes Senetas encryptors stand out from the crowd? Security without compromise!

Senetas encryptors' leading performance is not limited to their maximum data protection without loss of network performance.



## Best Performance

### HIGH-SPEED

The designed-in, market-leading performance capabilities of Senetas encryptors are what make them stand out from the crowd.

Whether operating at full line-rate 10Mbps, 100Mbps, 1Gbps or 10Gbps; time after time, they consistently win competitive performance tests.

Their encryption speeds, near-zero data overhead and near-zero latency make Senetas encryptors ideally suited to the most demanding network environments.

### NEAR-ZERO LATENCY

Senetas high-speed encryptors operate in full-duplex mode at full line speed without loss of packets.

Latency is not affected by packet size (<3 microseconds per unit at 10Gbps), meaning maximum throughput with zero protocol overhead.

Importantly, by using FPGA technology, this outstanding performance is predictable and dependable.

### ZERO IMPACT

The zero impact of Senetas encryptors is not limited to network bandwidth and latency; it extends to network operations and management.

They simply fit within the user network. They don't require changes to other devices or network reorganisation; making them a favourite among network engineers.



## High-Assurance

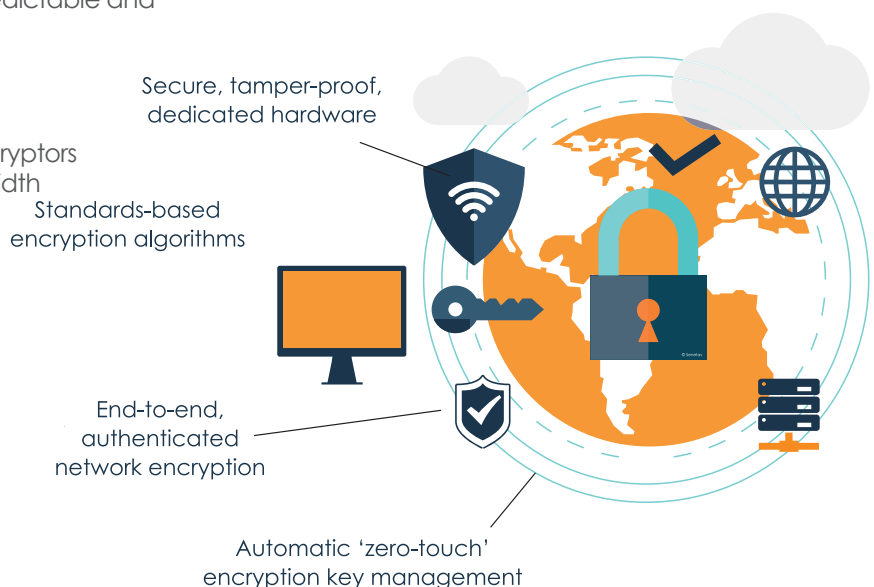
- > Secure, tamper-proof hardware; dedicated to network data encryption
- > State-of-the-art, embedded, automatic zero-touch key management
- > End-to-end, authenticated encryption
- > Standards-based encryption algorithms

### BEST ENCRYPTION KEY MANAGEMENT

All Senetas products adopt zero-touch, state-of-the-art encryption key management. Your encryption keys are only ever held by and accessible to you, on your premises; securely stored and encrypted.

### SOLUTION INTEGRITY

Senetas encryptors provide maximum solution integrity; unlike 'low assurance' solutions, such as router-based network data encryption or so called 'hybrid' encryptors with embedded encryption.





## Versatile & Simple

### SUPPORT FOR ALL PROTOCOLS

The Senetas CN range of encryptors provides the widest feature-set.

Able to operate at 10Mbps to 10Gbps plus, they are designed for Layer 2 Carrier Ethernet WAN and MAN networks and support all Layer 2 protocols: Ethernet, Fibre Channel; SONET/SDH and LINK.

### SUPPORT FOR ALL TOPOLOGIES

Senetas CN encryptors operate in multi-point to multi-point, meshed, single-point to multi-point and single-point to single-point network topologies. Whether the network topology is simple or complex, the same high-assurance benefits apply.

### EASY TO INSTALL

The 'bump in the wire' design of Senetas CN encryptors makes them easy to install.

Simply place the encryptor at the access point to the Layer 2 network and all data passing through the unit is encrypted.

### EASE OF USE

Set and forget simplicity and transparency are underlying Senetas design themes. They ensure ease of implementation, operation and management.

That simplicity continues with an intuitive user interface, providing meaningful diagnostics, such as early warnings and simple fault-finding.

### INTEROPERABILITY

Senetas encryptors supporting the same Layer 2 network protocol are fully interoperable. All Senetas CN models are backward compatible.

They may be relocated to other duties and newer models added over time to suit your changing needs; without becoming technically redundant.

### LOCAL OR CENTRALISED MANAGEMENT

Configuration may be performed locally or remotely through the intuitive Senetas CM7 management software; which acts as the Certificate Authority in a network of encryptors by signing and distributing X.509 certificates.



## Crypto-Agility

Cryptographic protocols and algorithms evolve over time to counter new security threats – that's why Senetas encryptors are designed to be "crypto-agile" out of the box. They provide extra assurance that your investment keeps pace with cryptographic advances.

### CUSTOM ENCRYPTION

In addition to the standards-based AES-256 bit algorithm, Senetas CN encryptors may be implemented with customised, customer requested algorithms.

Designed-in encryption agility enables the use of custom curves (BYOC) and entropy (BYOE).

### QUANTUM-READY

Selected Senetas encryptors also support Quantum Key Distribution (Quantum Cryptography) and Quantum random number generation, making them 'Quantum safe'.

Cryptographic protocols and algorithms evolve over time to counter new security threats – that's why Senetas encryptors are designed to be 'crypto-agile' out of the box. They provide extra assurance that your investment keeps pace with cryptographic advances.





## Low cost, high efficiency

TCO and ROI are proven financial decision-making aids for investments and expenditure.

In data security and network data protection, specific financial measures vary in use-case examples and are dependent upon many factors, including: organisations' cost structures, preferences and investment decisions.

Because all Senetas CN encryptors operate at full line speed; enable maximum network performance and deliver 'set and forget' management simplicity; they provide low-cost and high efficiency.

The business investment case out-performs even 'cheap and cheerful' low-assurance solutions.

It is not necessary, nor beneficial, to opt for low-cost, low-assurance solutions to meet the toughest business case requirements.

## Globally Certified

Senetas high-assurance network data encryptors provide state-of-the-art cryptography - meeting the broadest range of international encryption certification standards.

Because Senetas encryptors include the only multi-certified products of their types, they are trusted by governments and defence forces around the world.

Rigorous testing is carried out over many years and provides our government and commercial customers with maximum assurance. Senetas encryptors are certified by: FIPS, Common Criteria and NATO.



## COST-EFFICIENCY

Senetas encryptors provide excellent total cost of ownership through a mix of network bandwidth savings, ease of network management and reliability.

Longevity, interoperability, backward compatibility, minimal installation and management costs and solution flexibility all contribute to a rapid return on investment.

Other cost benefits include, low power consumption minimal rack space use and combined rack space/power utilisation efficiency.

## RELIABILITY

Senetas CN encryptors provide reliable 99.999% uptime and conform to international requirements for safety and environment.

All carrier-grade, rack mounted Senetas encryptors are hot-swappable and provide further network operations up-time benefits thanks to dual redundancy of encryptor consumables.

## FLEXIBILITY

Senetas encryptors' use of FPGA technology enables maximum operational flexibility.

They are better able to meet customers' specific requirements and provide an optimised high-speed data encryption solution.

This flexibility enables on-going operational simplicity, such as infield upgradability, as customers' requirements change; helping to protect their investment in technology.

## R&D COMMITMENT

Senetas's market-leading high-assurance encryption results from our commitment to research and development; to independent international testing certifications and high-speed encryption advances, such as support for Quantum Key Distribution.

## SPECIFICATIONS

### Cryptography

- > AES-256 bit or 256 bit keys
- > GCM ,CFB and CTR modes
- > Self-healing key managements
- > Traffic Flow Security (TRANSEC)

### Performance

Rate-limited options available, up-to 1Gbps full-duplex Ethernet encryption

### Encryptor management

- > Central configuration and management using CM7 and SNMPv3
- > SNMPv1/2 read only monitoring
- > Remote management using SNMPv3 (in-band and out-of-band)
- > Supports Syslog, NTP
- > RS and EC certificate signing
- > Support for external X.509v3 CAs
- > Alarm, event, and audit logs

### Installation

- > Size: 180 x 126 x 32mm
- > Desktop, optional rack mount kit
- > Maximum Weight: 500g
- > AC power source

### Interfaces

- > SFP network interface (optional RJ45 adapter available)
- > Front panel LED display status
- > Rear network, local and management interfaces

### Indications

- > Colour backlit LCD display

### Physical security

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

All specifications are accurate as of the time of publishing and are subject to change without notice to meet the ongoing requirements of Senetas and its customers.

## CN4000 AT-A-GLANCE

Model	CN4000
Protocol	Ethernet
Maximum port speed	1Gbps
Support for jumbo frames	✓
<b>Security</b>	
Secure and tamper-proof hardware	✓
Flexible encryption policy engine	✓
Per packet confidentiality and integrity with AES-GCM	✓
<b>Encryption policy</b>	
AES-128 bit or 256 bit keys	128/256 bit keys
Supports external certificate authorities	✓
Policy based on MAC address or VLAN ID	✓
Self-healing key management	✓
<b>Performance</b>	
Low overhead full duplex line rate encryption	✓
Latency (microseconds)	<10 @1Gps
FPGA based cut-through architecture	✓

## SENETAS CORPORATION LIMITED

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Senetas manufactures high-assurance Layer 2 Metro Area and Carrier Ethernet network encryptors. They support all Layer 2 protocols and topologies.

Our multi-certified encryptors are used by some of the world's most secure organisations; including governments and defence forces, commercial and industrial enterprises, Cloud, data centre and telecommunications service providers in more than 40 countries.

**SafeNet**<sup>®</sup>

[SafeNet CN Series  
Ethernet encryptors](#)

[www.gemalto.com](http://www.gemalto.com)

### GEMALTO DISTRIBUTION & SUPPORT

Senetas CN Series certified high-assurance network encryptors are distributed and supported internationally by Gemalto (North America, Europe, Asia, Middle East and Africa) as SafeNet CN Ethernet Encryptors.

## GLOBAL SUPPORT AND DISTRIBUTION

Senetas high-assurance encryptors are supported and distributed globally (excl. AUS & NZ) by Gemalto – the world's largest data security company - under its SafeNet Identity and Data Protection Solutions brand.

Gemalto also provides pre-sales technical support to hundreds of accredited partners around the world; including systems integrators, data network providers, cloud and data centre service providers, telecommunications companies and network security specialists.

## TALK TO SENETAS OR OUR PARTNERS

Senetas and Gemalto also work with customers' own data network service providers, systems integrators and information security specialists to specify the optimal high-assurance encryption solution for their needs.

Wherever you are, simply contact Senetas or Gemalto to discuss your needs. Or, if you prefer, your service provider may contact Senetas or Gemalto on your behalf.

## CERTIFIED HIGH-ASSURANCE NETWORK DATA ENCRYPTION

Whatever your Layer 2 Ethernet network security needs, Senetas has a high-assurance solution to suit. They support data network links from modest 10Mbps and 100Mbps to high speed 1Gbps and 10Gbps as well as 10 x 10Gbps and ultra-fast 100Gbps bandwidth.

Certified, scalable, agile and easy to use; Senetas high-assurance encryptors provide maximum data security without compromising network performance.

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