

Multilink / Multiprotocol Encryption – High-Performance Encryption for Ethernet, Fibre Channel and FICON Links!



- Flexible and cost-efficient data encryption using AES for Ethernet-, Fibre Channel-/FICON- and E1-connections
- 100% encryption performance and minimal latency
- Transmits up to ten different signals via CWDM, DWDM, Dark Fibre or SDH networks
- Supports Fast Ethernet, Gigabit Ethernet, 1/2/4/8 Gbps Fibre Channel/FICON and E1
- Easy network integration and minimal maintenance

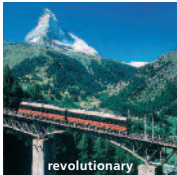
Using optical networks and different network protocols for transferring business-critical information has become quite commonplace. What is often overlooked, however, is that such fiber optic links can be tapped and manipulated, too. Also, it is possible for third parties to gain access to a company's internal structure. The only appropriate and reliable measure to protect information and to meet existing compliance requirements is to encrypt the data.

InfoGuard and ADVA Optical Networking have risen to this challenge, developing a flexible and cost-efficient multi-link and multi-protocol encryption solution. The InfoGuard Multilink Encryption device combines up to 10 Ethernet, Fibre Channel / FICON and E1 connections over a single transmission link.

Multilink / Multiprotocol Encryption – High-Performance Encryption Solutions bearing the Swiss Seal of Quality!

In day-to-day business, data transfer over fiber optic networks has become 'de rigueur'. In more and more networks, bandwidths of up to 10 Gbps are the order of the day when linking various sites e.g. server farms and computer centers as well as for backup and disaster recovery infrastructures. Unfortunately, the prevailing opinion according to which fiber optic lines, compared with regular copper cables, are especially secure, does not hold true in practice. On the contrary: Just bending the fiber is all it takes to listen secretly to information exchange. The only reasonable and secure measure for protecting yourself against attacks of any kind is the encryption of that information without, however, jeopardizing performance in any way. InfoGuard products have been developed – in accordance with international security standards – exactly for this demanding task using an approach that is truly exemplary and innovative.

Maximum Performance



InfoGuard encryption devices are fully transparent within the network. Their

outstanding performance, i.e. 100% encryption throughput, and their minimal latency make it possible to use the devices even in time-critical applications and in heavy-load links.

Great Flexibility

Their flexible and modular architecture allows them to be used perfectly tap-proof in various protocols (Ethernet, SONET/SDH, Fibre Channel, E1) in conjunction with different MAN, WAN and SAN applications at data rates of up to 10 Gbps.

Powerful Data Encryption

All security solutions have been developed strictly in accordance with the FIPS 140-2 level 3 requirements. Data encryption is done using the public Advanced Encryption Standard (AES) with a key length of 128 or 256 bits.

Easy Handling

Simplicity and ease of use to the benefit of security are guaranteed. The devices can be managed locally via the internal user interface or via a graphic PC user interface or remotely via a secure SSH port.

High Availability

InfoGuard products have been explicitly designed for longevity and require almost no maintenance. In order to guarantee uninterrupted service at all times, the devices are equipped with a redundant power supply. In order that users can depend on the high availability of the devices, InfoGuard provides individually tailorable maintenance services.

A Swiss Product

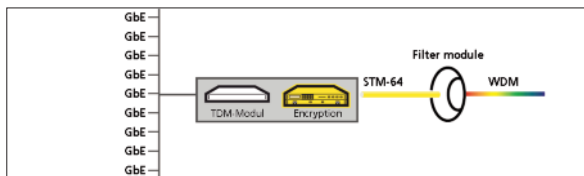
A Swiss company, we can guarantee the highest quality of our encryption products and absolute independence when implementing their security features. All security relevant modules are developed and manufactured by our certified security specialists in Switzerland.

Application scenarios – InfoGuard Multilink/Multiprotocol Encryption

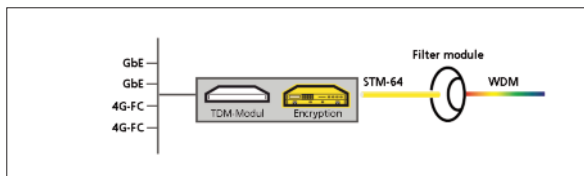
InfoGuard MG10 – 10 port encryption for GbE, FC and FICON

InfoGuard MG10 is an extremely flexible and scalable encryption solution that is multilink and multiprotocol compliant. It permits up to ten different Ethernet, Fibre Channel and FICON links (1/2/4/8 Gbps) to be encrypted and transmitted over a single communication path. The solution comprises a TDM card supplied by ADVA, which multiplexes the signals at the input into a STM-64 frame (10 Gbps), and the InfoGuard SG192 encryption unit, which encrypts the signal in real-time. The high performance solution is ideal for interlinking data process centres, in order to exchange sensitive data with maximum security (e.g. synchronous or asynchronous mirroring).

InfoGuard MG10 Ethernet



InfoGuard MG10 Multiprotocol

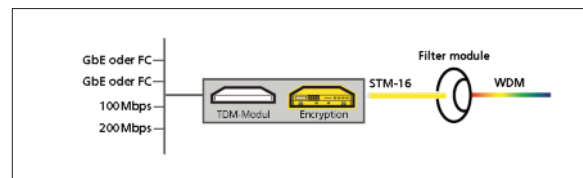


InfoGuard MG4 – 4 port encryption for GbE, FC and FICON

Like InfoGuard MG10, InfoGuard MG4 is a multilink and multiprotocol compliant encryption solution with 4 client interfaces, which can be configured optionally as Gigabit Ethernet, Fibre Channel or FICON (1 or 2 Gbps). The input signals are multiplexed into STM-16 (2.5 Gbps) using a TDM card supplied by ADVA, and then encrypted with the help of the

InfoGuard SG48 encryption device. Thanks to the different combinations and configurations and the ability to undertake traffic shaping in steps of 50 or 150 Mbps for Gigabit Ethernet, InfoGuard MG4 can be looked upon as a scalable, flexible and cost-effective encryption solution. It is ideal for encrypting sites that are linked to several services not needing the full bandwidth.

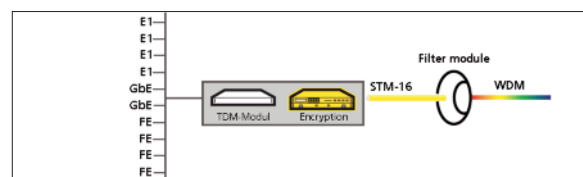
InfoGuard MG4









InfoGuard MG10S – 10 port encryption for E1, Fast Ethernet, GbE and Fibre Channel / FICON

InfoGuard MG10S is a 10 port encryption solution that can transmit up to four E1 and Fast Ethernet plus two Gigabit Ethernet or Fibre Channel / FICON services with maximum security over a single link. The solution comprises a multiplex appliance supplied by ADVA, which multiplexes the input signals, and the InfoGuard SG48 encryption unit. InfoGuard MG10S is particularly suitable for securely connecting sites that are still linked by legacy technologies (E1) and use limited bandwidth in the LAN domain (Fast Ethernet).

InfoGuard MG10S



InfoGuard Multilink / Multiprotocol Encryption

Encryption Unit	 InfoGuard MG10	 InfoGuard MG4	 InfoGuard MG10S
Security	Data encryption at the SDH level · 9,953 Gbps (STM-64) · 2,488 Gbps (STM-16) · 2,488 Gbps (STM-16) Full-duplex AES 256 Bit (Optional 128 Bit) Keys generated by a hardware random number generator Automatic key change after configurable interval without link loss Meets the FIPS 140-2 Level 3 requirements		
Management	Password protection, identity-based operator authentication Secure remote management (SSH v2 CLI) Inter Unit Management via SecurityCard – SDC-1100 Local management via browser-based user interface or via keypad and display Standard Network Management (SNMPv1/Standard MIB-II) Audit and event logging		
Hardware	Manipulation-proof hardware design Network port: XFP module with LC connector: Single Mode 1310/1550 nm, CWDM and DWDM 19" rack-mounting – 2 units high Redundant hot-swap power supply, 100V–240V AC 50...60 Hz, 48V DC 100W max. power consumption MTBF 100,000 hours		
Link Interfaces	· SFP-Modul	· SFP-Modul	· SFP-Modul
TDM-Modul			
Protocols	· Gigabit Ethernet · Fibre Channel 1/2/4 Gbps · FICON 1/2/4/8 Gbps	· Gigabit Ethernet · Fibre Channel 1/2 Gbps · FICON 1/2 Gbps	· 2 x Gigabit Ethernet or Fibre Channel/FICON 1Gbps · 4 x Fast Ethernet · 4 x E1/T1
Max. bandwidth	· 10 Gbps (STM-64/OC-192)	· 2,488 Gbps (STM-16/OC-48)	· 2,488 Gbps (STM-16/OC-48)
Multiplexing method	· GFP-T, based on VC-4 containers	· GFP-T, based on VC-4 containers · GFP-F, based on VC-3 or VC-4 containers (traffic shaping possible)	· GFP-T, based on VC-4 containers · GFP-F, based on VC-3 or VC-4 containers (traffic shaping possible)
Latency	< 20µs		
Client Interfaces	· 10 x SFP Module	· 4 x SFP Module	· 2 x SFP Module · 8 x RJ45
Hardware	19" rack-mounting – 1 Unit high Power supply -36V DC to -72V DC or 120/230VAC		

InfoGuard – Your Partner for Effective Security Solutions bearing the Swiss Seal of Quality!

We have many years of experience in planning and developing security solutions for demanding applications. All security-relevant features are developed, manufactured and implemented by InfoGuard's certified security specialists in Switzerland.



ADVA Optical Networking

ADVA Optical Networking (FSE:ADV) is a leading provider of optical and Ethernet transport solutions accelerating the introduction of high-performance networks for advanced data, data storage, voice and video services. The company's innovative Fiber Service Platform (FSP) and strong customer orientation enable network operators and companies to scale their networks and to provide intelligent, competitive new services. www.advaoptical.com

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