



# ETHERNET LAYER 2 LINK ENCRYPTION

## High performance data encryption for optical Ethernet networks

- 1 and 10 Gigabit Ethernet layer 2 data encryption using AES
- 100% encryption performance and consistently low latency <math><5 \mu\text{s}</math>
- Easy network integration and minimal maintenance
- Central configuration, administration and monitoring
- Developed and manufactured in Switzerland

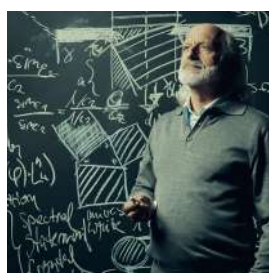
Fibreoptic networks are indispensable in today's business world. A fact that is often overlooked remains, however, that such networks can be easily tapped and manipulated and information integrity, confidentiality or authenticity are not absolutely guaranteed. Users of this otherwise revolutionary technology run a potentially existential risk. The only reasonable and reliable measure for protecting information and for meeting existing compliance requirements is to encrypt such information at the point of entry to the public network.

InfoGuard offers a special new encryption solution for the completely secure exchange of information in optical Gigabit Ethernet networks.

# ETHERNET LAYER 2 LINK ENCRYPTION

## High-performance encryption made in Switzerland

In day-to-day business, data transfer over fibre 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 fibre optic lines, compared with regular copper cables, are especially secure, does not hold true in practice. On the contrary: Just bending the fibre 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.



**Revolutionary**  
.....



**Secure**  
.....



**Reliable**  
.....

### 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) in conjunction with different MAN, WAN and SAN applications at data rates of 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 tailorab- le maintenance services.

### Swiss Product

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

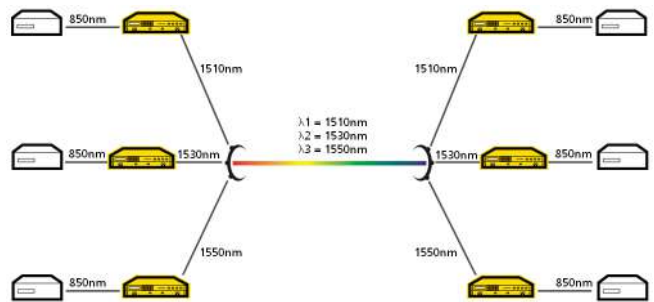
## Dark Fiber

To interlink their branches, more and more companies choose fibre optic links, over a dark fiber, for instance. In this type of link, the two encryption devices are just switched on. This application is very common, and it is irrelevant whether it is used within a company's own network or within a line leased or purchased from a service provider.



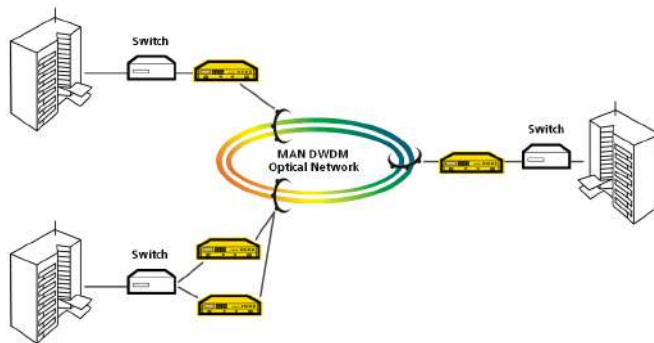
## CWDM

In this application scenario, a CWDM infrastructure forms the transport network. The CWDM process increases the performance of existing infrastructures by distributing the data across different wavelengths for subsequent transfer over the same optical cable. In addition, the encryption solution supports, thanks to the flexibility of its transceivers, passive multiplexing and helps users to reduce overall cost even further.



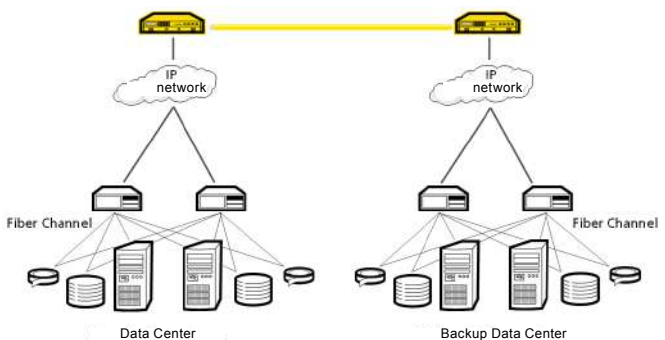
## DWDM

The encryption solution is perfectly suited for use in DWDM networks, bridging distances of up to several hundred kilometers, or in city networks using DWDM. Interlinking company branches directly using Gigabit Ethernet over DWDM is highly advantageous for a company's network, as the company can "plug" its Ethernet infrastructure right into the city network. All applications of the local network will work regardless of site.



## SAN Extension

SAN Extension means linking two SAN islands over transport networks. A common transmission technology is IP (Storage over IP). The encryption solution is easily integrated into such topologies, reliably protecting sensitive data from being tapped during transfer.



# INFOGUARD EG1/EG10 – ETHERNET ENCRYPTION

## SECURITY

<b>Algorithm</b>	AES
<b>Key length</b>	256 Bit (Optional 128 Bit)
<b>Key change</b>	Automatic communication key change without interruption of traffic
<b>Access protection</b>	<ul style="list-style-type: none"> <li>• Tamper-proof design</li> <li>• Password protection, identity-based operator authentication</li> <li>• Block/unblock function</li> <li>• Emergency Clear</li> </ul>

## MANAGEMENT

<b>Key Entry</b>	<ul style="list-style-type: none"> <li>• Automatic key generation with true random generator</li> <li>• Copy / backup of key and installation data via SecurityCard</li> <li>• Manual key input via user interface</li> </ul>
<b>Management</b>	<ul style="list-style-type: none"> <li>• Secure Remote Management (SSH v2 CLI)</li> <li>• Inter unit management via SecurityCard – SDC-1100</li> <li>• Local management via keypad and display or via web-based user interface</li> <li>• Standard network management (SNMPv1/Standard MIB-II)</li> <li>• Audit and Event Logging</li> </ul>



## HARDWARE

	<b>InfoGuard EG1</b>	<b>InfoGuard EG10</b>
<b>Line rate</b>	1Gbps, Full Duplex, Encryption without overhead regardless of package size	10Gbps, Full Duplex, Encryption without overhead regardless of package size
<b>Communication Interface</b>	Interface IEEE802.3 standard <b>1000BASE-SX, -LX</b> SFP-Module with LC connector	Interface IEEE802.3 standard <b>10GBASE-R, -W</b> XFP-Module with LC connector
<b>Latency</b>	< 5 µs	< 5 µs
<b>Management Interface</b>	<ul style="list-style-type: none"> <li>• Ethernet 10BASE-T/100BASE-TX RJ45 (local and remote management)</li> <li>• Serial RS-232 RJ45 (diagnostics)</li> <li>• RJ45 Alarm Relay (Active or Non-Active Alarm Indication)</li> </ul>	
<b>Test facilities</b>	<ul style="list-style-type: none"> <li>• Build-in test equipment (BITE)</li> <li>• Diagnostics (BITE)</li> </ul>	
<b>Quality system</b>	ISO 9001 : 2000	
<b>Conformity</b>	CE (European Conformity)	
<b>Compliance</b>	Fulfills FIPS 140-2 level 3 requirements	
<b>EMC</b>	EN 55022 Cl B and EN 55024 according to 89/336/EEC guidelines	
<b>Safety</b>	EN 60950-1 and EN 60825-1 (class 1) according to 73/23/EEC guidelines	
<b>Power supply</b>	<ul style="list-style-type: none"> <li>• Dual power supply unit, hot-pluggable(AC/AC; AC/DC; DC/DC)</li> <li>• AC input 230 VAC nominal 100 V – 240 V/50 ... 60 Hz (+/-10%) / DC 48 V (+/-25%)</li> <li>• Maximum power consumption 150 W</li> </ul>	
<b>Operation temp.</b>	-5° C ... +50° C	
<b>Storage temp.</b>	-25° C ... +70° C	
<b>Humidity</b>	5% ... 95%	
<b>Cooling</b>	6 ventilators, redundancy, hot-pluggable	
<b>Dimensions</b>	19" Rack-Mounting - 2 Units High, 441 x 88 x 336mm (W/H/L)	
<b>Weight</b>	8 kg	
<b>Reliability</b>	MTBF 50'000 hrs	
<b>Availability</b>	99,999%	

## InfoGuard – The Swiss Cyber Security Expert

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

**InfoGuard AG**  
Lindenstrasse 10  
6340 Baar / Switzerland  
Phone +41 41 749 19 00

**Office Bern**  
Stauffacherstrasse 141  
3014 Bern / Switzerland  
Phone +41 31 556 19 00

INFOGUARD.CH