

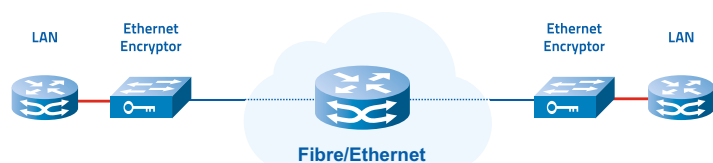
High Assurance Ethernet and IP Encryption up to 100G

The **atmedia Encryptrs** are safeguarding any layer 2 or layer 3 network communication reliably and without loss of quality. The area of application reaches from encryption of point-to-point connections to complex and large multipoint SD-WAN, MPLS, VPLS or Metro Ethernet and Cloud infrastructures. The systems are the first choice for the realization of highly available network scenarios where the communication between distributed sites or data centres has to be secured against interception and manipulation.

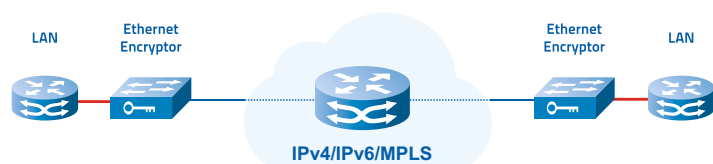
The atmedia systems implement network and encryption functionality using proprietary FPGA hardware. Thanks to AES-GCM integrity and replay protection at the data and control planes, the devices function like a "perfect firewall." Due to line-speed data processing, the systems are immune to DDoS attacks. This protection against active attacks significantly improves the cyber resilience of critical infrastructures.

Application Scenarios

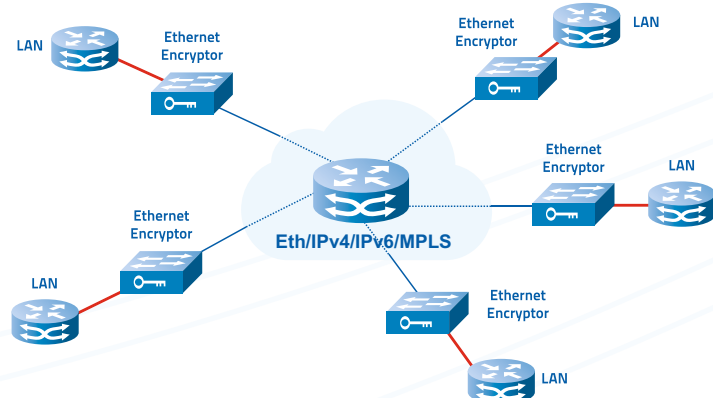
Ethernet interconnect via layer 2 or layer 1



Ethernet interconnect via layer 3 (IPv4 or IPv6 managed services)



Multipoint any-to-any interconnect via layer 3 or layer 2



Highlights

- Strongest available crypto technology (AES256-GCM, 512bit ECC)
- Quantum-resistant implementation
- Hardware-based random number generation
- Tamper resistant chassis
- IP-Tunnel via arbitrary IPv4 and IPv6 networks
- Secure SD-WAN underlay encryption
- Lowest encryption overhead possible for secure operation
- Traffic Flow Security (optional)
- No change of network design needed
- No impact on existing redundancy schemes
- Autonomous and maintenance free operation
- Low energy consumption (Green IT)
- Approved by the German BSI for classified data (VS-NfD, EU RESTRICTED, NATO RESTRICTED)
- Made in Germany

Technical Data

atmedia Ethernet Encryptor

Models	
• A100M:	100M/1G throughput (RJ45 copper interfaces)
• A2x1G:	2 * 1G, 10G throughput (SFP/SFP+ interfaces)
• A1G/A10G:	100M/1G/10G throughput (SFP/SFP+ interfaces)
• A4x10G:	4 * 1G/10G throughput (SFP/SFP+ interfaces)
• A40G:	10G/40G throughput (QSFP+ interfaces)
• A100G:	100G throughput (QSFP28 interfaces)

Performance
• Ethernet (Layer 2) und IP (Layer 3) encryption in point-to-point-, point-to-multipoint- or multipoint mode
• Multi tenant group encryption (max. 1000 peers)
• Real-time encryption in FPGA hardware
• Encryption independent of packet size and packet content
• Low power consumption (Green IT)
• Latency: 100M < 50µs, 1G < 9µs, 10G/40G/100G < 5µs

Network
• Compatible with E-Line, E-Tree, E-Lan, VPLS, VPWS and other Ethernet services
• Support of Jumbo frames with optional fragmentation
• IP-Tunnel mode: Layer 2 over IPv4 or IPv6 (IP or UDP) Throughput for small packets over 97% of link bandwidth
• Link Loss Carry Forward/Optical Loss Pass Through
• Traffic Flow Security mode prevents the identification, analysis and leakage of any data on the encrypted link.
• Protection from active attacks against the control plane (Denial of Service) with hardware-based GCM packet filters
• Simple and secure IPv6 support
• Interoperable with network products of leading vendors

Options
• Interface modules for fibre and copper
• Rail extension kit for 19" mounting
• Optional licences for speed upgrades
• Optional licences for custom ECC, custom AES, TFS and IP

Crypto Technology
• AES-GCM(256 Bit) encryption with 128 Bit tag
• Integrity and replay protection with Galois Counter Mode (GCM)
• Key generation with hardware random source
• Key exchange with Diffie-Hellman ECC algorithm (ECDH)
• Compliant to the requirements of FIPS 140-2 L3 and CC EAL4
• Approved by the BSI for VS-NfD, NATO and EU RESTRICTED

Key Management
• Ad-hoc device authentication for peer registration
• Tamper resistant key storage
• Built-in key server for the distribution of group keys
• Automatic time triggered change of session, master and group keys without traffic interruption

System Management
• Configuration via serial console (RS-232/V.24) or Secure Shell (SSH) network access (out-of-band Ethernet RJ45 10/100/1000BT)
• Integrated monitoring of network status and operation
• Audit and event logging
• Remote monitoring via SNMP (V2c/V3 authpriv)
• Link monitoring with atmedia CryptMon

Hardware	
• Operating temperature: 1°C - 40°C	
• Relative humidity: 10% - 85%, non condensing	
• Chassis:	Tamper resistant design 430mm x 230mm x 44mm (A100M, A2x1G) 430mm x 330mm x 44mm (A10G/A40G/A100G)
• Power supply:	A100M: 100-240V AC, 50-60Hz~, 12W, 2*AC A2x1G: 100-240V AC, 50-60Hz~, 20W, 2*AC A10G: 100-240V AC, 50-60Hz~, 40W, 2*AC HS A4x10G: 100-240V AC, 50-60Hz~, 55W, 2*AC HS A40G: 100-240V AC, 50-60Hz~, 50W, 2*AC HS A100G: 100-240V AC, 50-60Hz~, 70W, 2*AC HS

Conformity:
• CE (CB), FCC

The atmedia systems and related documentation are subject to continuous improvement. Therefore atmedia reserves the right to change documentation without notice.

Current firmware release: 3,4,0

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