Product Sheet

CROWN CASTLE | FIBER

# Optical Encryption

Optical Encryption from Crown Castle Fiber uses revolutionary technology to offer Federal Information Processing Standards (FIPS-certified) encryption of in-flight data from end-point to end-point.

Our easy to implement solution offers maximum protection and throughput and optimizes latency by encrypting all of your in-flight data at the optical level—regardless of where it's generated. Whether you have a 10Gbps or 100Gbps connection, you'll maintain total control over your security parameters and keys. And since it can easily be added to one of our exisitng solutions, you won't need to purchase, deploy, or manage costly new equipment.

## Key Benefits

### Security

Maximize your security with industry-leading technology that encrypts in-flight data from end-point to end-point at Layer 1.

### Efficiency

Encryption management runs out-of-band so no overhead is added. You also receive full line rate performance at all frame sizes and protocols with minimal latency impact.

### Flexibility

Our solution is protocol agnostic, allowing you to avoid cumbersome configurations for multiple protocols. Optical Encryption can be ordered as a new service or as an upgrade to existing Wavelengths, both without standalone encryption boxes—keeping both capital and operating expenses low.

### Control

You can upgrade at will to keep up with technology or align with changing requirements. You maintain your own security protocols and keys, and a dedicated management tool gives you complete control over all your security parameters.

**25+ Years**
**of Expertise**

**NYSE**
**S&P 500**

### Added Solutions

- Cloud Connect
- **Optical Encryption**
- Ultra-Low Latency
- DDoS Defense Solutions
- Video Transport

## Technical Specifications

| SOLUTION | DESCRIPTION |
|---|---|
| Bandwidth Options & Handoff Protocols | Encryption over Wavelength<br>- 10Gbps: 10 GigE, FC800, FC1200, OC-192, OC-192c<br><br>Encryption over Managed Private Optical Network<br>- 10Gbps: 10 GigE, FC800, FC1200, OC-192, OC-192c<br>- 40Gbps: 40 GigE, OC-768<br>- 100Gbps: 100 GigE |
| Protocols Protected | Optical Encryption is protocol agnostic, encrypting all payload data, at all packet and frame sizes, at full line rate. The service protects all major transport protocols, including Ethernet, IP, SONET, Fiber Channel, Video Transport, and OTN. |
| Availability | Availability specs are based on the design of the network delivering the encryption service. Options are available for route diversity with failover to ensure the highest availability possible. |

## Security Features

- NIST-Compliant AES-256 encryption
- Elliptic Curve Cryptography (ECC) algorithms
- Diffie-Hellman secured key negotiation (including Elliptic Curve)
- X.509 certificate support for authentication
- Easily integrates into enterprise Public Key Infrastructure (PKI) using x.509 certificate-based authentication
- Support for Certificate Revocation List (CRL)
- Hitless AES-256 key rotation every second
- TLS-secured and mutually authenticated interface for encryption management
- Integrates into existing Public Key Infrastructures (PKIs) using x.509 certificate-based authentication
- Radius authentication support
- SNMPv3 support
- Elliptical Curve certificates

## Security Certifications

| SOLUTION | DESCRIPTION |
|---|---|
| Encryption Service over Wavelength (10Gbps) | - FIPS 140-2 Level 3<br>- FIPS 197 – AES-256<br>- IBM GDPS<br>- EMCW<br>- Brocade |
| Encryption Service over Managed Private Optical Network (10Gbps, 40Gbps, 100Gbps) | - FIPS 140-2 Level 2·FIPS 197 – AES-256<br>- IBM GDPS<br>- EMCW<br>- Brocade |

CROWN CASTLE

Crown Castle owns, operates and leases more than 40,000 cell towers and approximately 60,000 route miles of fiber supporting small cells and fiber solutions across every major US market. This nationwide portfolio of communications infrastructure connects cities and communities to essential data, technology, and wireless service—bringing information, ideas, and innovations to the people and businesses that need them.



For more information, please contact 1-855-91-FIBER or visit **Fiber.CrownCastle.com**