FORTRESS® TECHNOLOGIES

ES2440
High Capacity Infrastructure Mesh Point

High-capacity wireless mesh point for rapid outdoor deployment

The Fortress ES2440 High Capacity Infrastructure Mesh Point utilizes MIMO technology to bring high performance secure wireless communications to outdoor locations and across long distances through a self-forming, self-healing mesh network. The ES2440 offers FIPS 140-2 validated security and is upgradeable to NSA Suite B algorithms*. Delivered in a form factor that is rugged, weatherized and easy to set-up and operate, the Fortress ES2440 functions as both a wireless access point and bridge, with four powerful radios for maximum range and performance.

Fortress Mesh Points ensure high performance networking under highly mobile conditions, allowing nodes to move within the network and to seamlessly leave and join the network.

- Rapidly deployable in theater network extension solution
- Enabled for COTS-for-SECRET deployments*
- Ruggedized for use in harsh environments
- High capacity through 4 MIMO radios
- Long range links with high throughput and reliability

COTS+

Fortress Solutions leverage industry proven and cost effective technologies adapted for tactical environments.

- High quality cryptographic implementation
- Specially rugged packaging
- State of the art design optimized for size, weight and power consumption
- High-power, low-noise radio designs

Fortress' COTS+ approach provides the most suited solution to address secure wireless networking in military, government and other sensitive arenas.

Comprehensive Security

The central component of DoD and other sensitive network solutions is the ability to ensure data security at all times and at all levels. Fortress products support the most advanced security implementations in the industry. Using standards based, interoperable and compliant security protocols certified to FIPS-140-2 and upgradable to NSA Suite B cryptography, Fortress is a leader in secure wireless networking. Fortress products are unique in that they support in-built RADIUS, advanced Wi-Fi WPA2 security with EAP-TLS, use a hardware crypto implementation and have a hardware based True Random Number Generator (TRNG) ensuring the richest security with the highest performance.

FastPath Mesh™

Fortress FastPath Mesh technology provides a self-forming, path optimizing, self-healing network architecture designed from the ground up to support truly mobile and often transported networks, elegantly addressing the needs of dynamic tactical networks. FastPath Mesh is link protocol agnostic and utilizes all interfaces and radio links to reach a destination using the lowest cost path. The resulting network is a unique mix of proactive and reactive protocols designed to work together to improve network performance and address moving nodes.

Overlaid on the mesh is end-to-end encryption and capabilities to eliminate multicast/broadcast flooding for improved overall network performance. Fortress's implementation includes a fully distributed DNS capability and is IPv4 and IPv6 multicast-aware.

Rugged for Outdoor

Robust packaging and enhanced RF specifications are crucial to adapting standard Wi-Fi to the harsh and long range conditions typical in tactical wireless deployments and transportable networks. Size, Weight and Power (SWaP) and highest levels of environmental certification are the cornerstone of providing a solution that can withstand the toughest conditions, can survive constant portability, and can be easily embedded in larger systems. Better quality and high power RF enables reliable, high throughput long distance operation required for typical in-theater operational conditions.

Fortress solutions are delivered in ruggedized form factors with superior RF hardware and antennas while remaining more cost effective than custom designed technology once typical in secure networks.

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Features of the ES2440 High-Capacity Infrastructure Mesh Point

Made in the USA

Fortress products are designed and manufactured in the USA to maintain the highest levels of quality with oversight to provide manufacturing design assurance. All software or programmable hardware devices are built from source code that is controlled in house.

Optimal SWaP+C
(Size, Weight, Power & Cost)

Fortress provides the lightest and smallest Mesh Points in the industry, purpose built for frequent transportation and integration into land, sea and air vehicles. Mesh points operate with diverse power sources and have low power consumption requirements. For tactical applications, Size, Weight and Power + Cost (SWaP+C) are critical considerations.

Dynamic Frequency Selection

Dynamic Frequency Selection (DFS) allows automatic detection of radar signals and switching to another channel in less than 10 seconds as per the IEEE 802.11h standard. Fortress products are the only solution to support DFS in both Infrastructure and Mesh mode.

RF Performance

Fortress products offer Industry-leading Wi-Fi range and performance. Using industry standard 802.11 a/b/g and n, Fortress radios operate in the 2.4 GHz and 5.8 GHz Wi-Fi bands and optional 802.11a-type communications in the 4.4 GHz and 4.9 GHz bands. Fortress has demonstrated performance with distances in excess of 32 miles.

Multicast Optimization

Fortress FastPath Mesh products are optimized to minimize multicast and broadcast traffic, improving the performance of the network. FastPath Mesh snoops Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD) requests, subscribes to the streams on behalf of the listeners and forwards traffic only on relevant interfaces.

2 Rack Units High

This low profile product can be mounted into standard 19 or 23 inch equipment racks and only takes up 2 Rack units (<3.5 inches) in height.

Suite B Capable

The NSA Suite B initiative is a common set of cryptographic algorithms to create products that meet the widest range of US Government needs. Suite B Cryptography is built on COTS information-assurance products using Advanced Encryption Standard (AES) and is under evaluation by the NSA to protect information up to the SECRET level. Fortress products are NSA Suite B capable and can be upgraded where approval is achieved.

Hardware Based Encryption

Fortress products deliver much higher performance by using a hardware crypto FPGA that enables fast, deterministic performance to protect against timing attacks. Fast security throughput is critical in supporting real-time applications such as encrypted voice and video. Fortress' cryptographic implementation has passed rigorous examination and been approved by NIST.

Licensed 4.4 GHz C Band

Fortress products can operate in the 4.4 GHz C Band a licensed band allocated to US and NATO military use. Operating at 4.4 GHz in the C Band offers several advantages. 4.4 GHz is a licensed band restricted to military use, so it offers an additional level of security, and less crowded use of the spectrum.

Superior Performance

Fortress Mesh Points use hardware crypto and hardware TRNG to provide fast, deterministic performance that is unmatched in the industry. They are equipped with powerful radios that can operate in 802.11 a/b/g modes, providing superior range and performance.

GPS Enabled

GPS capability provides real-time position data that is displayed in Fortress's Topology Viewer and Mesh Viewer as well as Google Earth, and Cursor on Target / FalconView for Blue Force Tracking.

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ES2440
High Capacity Infrastructure Mesh Point

- **Simple & Secure Connectivity**
- **Maximum Range & Network Resilience**
- **Small & Rugged Design**
- **Easy to Use**
- **Pole Mountable**
- **Certified Security**
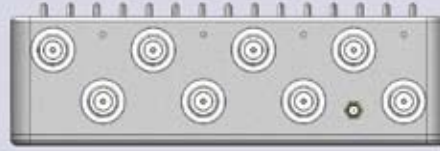
Mechanical

Dimensions
8.5"x 9.5"x 2.75"

Weight
7lbs

Mounting
- Tool-less Mast Mounting
- Direct Wall Mount

Interfaces

Ethernet
- 3x 10/100/1000BT

Serial
- 1x RJ45 Connector

Power
- 2 Pin Conn-X Connector

Antenna
- 8x N-Type Connectors
- 1x SMA (GPS)

Networking

IP Compatibility
- IPv4 and IPv6
- Integrated DHCP and DNS

Wireless
- Self-forming, self-healing and path optimizing Fortress FastPath Mesh™

RF ES 2440-3555

Radio 1 250 mW 802.11 a/b/g/n
Radio 2 500 mW 802.11 a/n
Radio 3 500 mW 802.11 a/n
Radio 4 500 mW 802.11 a/n

(All radios 2x2 MIMO)

RF ES 2440-3444

Radio 1 250 mW 802.11 a/b/g/n
Radio 2 800 mW 802.11n 4.4 GHz
Radio 3 800 mW 802.11n 4.4 GHz
Radio 4 800 mW 802.11n 4.4 GHz

(Radio 1: 2x2 MIMO)

Security

FIPS
- FIPS 140-2 Level 2 (in process)

Encryption
- AES-CTR-128/192/256
- AES-GCM-128/256
- AES-CCM-128
- WPA2 (802.11i)
- IPsec (Suite B & Legacy)
- NSA Suite B Upgradeable*

Performance

Sustained FIPS Crypto Throughput
500Mbps

Management

Access
- Secure Browser-based GUI
- Serial CLI (physical access)
- SSH (network)
- SNMP Monitoring

Indicators
- Power
- Status
- Ethernet 1 link/activity
- Ethernet 2 link/activity
- Ethernet 3 link/activity
- Radio1 activity
- Radio2 activity
- Radio3 activity
- Radio4 activity

Control
Reset Button

Environmental

Operating Temperature
-40°C to +70°C (-40°F to +158°F)

Storage Temperature
-40°C to +70°C (-40°F to +158°F)

Cooling
Convection Cooled (no fans)

Humidity
5%-95% Non-Condensing

Power

Voltage
- 10 to 30 VDC
- POE+ (802.3at)

Certification

Safety & Emissions
CE, FCC, ETSI, CB Test, IC, RoHS

Environmental
RoHS-6

DFS
FCC, ETSI

NIST
FIPS 140-2 Level 2 (in process)

HERO/HERF/HERP
MIL-STD 464A

EMI
MIL-STD 461F

Power
MIL-STD 1275

Harsh Environments

Shock, Vibration & Temperature
MIL-STD 810G

Weather Resistance Protection Rating
IP67 Submersible Enclosure

Manufacture & Warranty

Origin USA

Warranty 1 year limited warranty

* NSA Approval Required

Fortress Technologies is the leader in providing COTS+ secure wireless infrastructure designed specifically for tactical military applications. Today, Fortress infrastructure is the backbone of the DoD's largest wireless mesh networks deployed around the globe. Fortress products incorporate NSA Suite B cryptographic algorithms and are specifically designed to meet the highly mobile, rugged outdoor military environments.

Fortress Technologies

www.fortresstech.com

1.888.477.4822

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