# E4G-400 Cell Site Aggregation Router

## Highlights

The Extreme Networks® E4G-400 cell site aggregation router delivers Ethernet, IP/MPLS and pseudowire capabilities in a compact 1RU form factor. The E4G-400 provides mobile operators the ability to manage and aggregate TDM and Ethernet services and their associated protocols onto an economical and efficient Ethernet mobile backhaul infrastructure.

- Optional industry-standard TDM pseudowires – supports up to 16 TDM ports and 256 total pseudowires
- Optional 10 Gigabit Ethernet ports – up to 6 ports
- Increased Gigabit Ethernet ports – 28 active GbE ports
- Certified synchronization – both IEEE 1588v2 and SyncE
- Carrier-grade resiliency – through EAPS (Ethernet Automatic Protection Switching, RFC 3619) or ITU-T G.8032 Ethernet Ring Protection standard
- Integrated Ethernet OAM – support for IEEE 802.3ah, IEEE 802.1ag, and ITU Y.1731
- Compact 1RU size
- Stacks up to 8 units for incremental scale and growth as needed

## Overview

For service providers, revenue growth is increasingly driven by 3G and eventually 4G mobile services that provide access to compelling smartphone and tablet-based applications. The challenge in designing true 4G mobile backhaul is to build a foundation that protects existing investments in 2G and 3G services, provides a superior subscriber experience, prepares for future 4G service requirements, and minimizes costs. This challenge can be met by deploying a true 4G mobile backhaul network with three key ingredients: resiliency, synchronization and performance.

Extreme Networks E4G-400 router is a carrier-grade Ethernet platform that provides a seamless migration path from TDM circuits to Ethernet services for mobile operators and creates a fundamental Ethernet infrastructure capable of scaling to the needs of 2G, 3G and 4G mobile networks.

## Product Description

The E4G-400 is a cell site aggregation router providing up to 28 GbE ports and six 10 GbE ports in a 1RU form factor. Additionally, the E4G-400 router provides an optional 16-port T1/E1 interface module to address the pseudowire capability that may be required at various points in the network (i.e. where 2G/3G cell towers are located in closer proximity to the cell site aggregation switch). The E4G-400 aggregation router offers services capacity as well as subscriber scalability through its line-rate GbE and 10 GbE performance and support for IPv6 in hardware.

Multiple resilient GbE Ethernet Transport rings can be provisioned to support thousands of cell sites due to the line-rate performance and port density of the E4G-400, and through its support for EAPS and ITU-T G.8032.

For end-to-end clock synchronization to deliver predictable multi-service performance, the E4G-400 router can be SyncE-enabled. IEEE 1588v2 is also supported, and one or both of these protocols can be utilized depending on the deployment scenario, giving mobile

operators the flexibility to choose the option that best suits their needs.

For service assurance and management of SLAs, Extreme Networks E4G-400 router supports advanced OAM capabilities including IEEE 802.3ah Link OAM, IEEE 802.1ag Service OAM and ITU-T Y.1731 Performance Monitoring. The E4G400 also supports MPLS-TP, which can provide a cost-effective and resilient mobile backhaul network that connects to the widely deployed MPLS mobile core infrastructure.

- With advanced routing and switching features such as MPLS, IPv6, Ethernet OAM and others, the E4G-400 is future proof to protect the service provider's investment
- ExtremeXOS® software at the cell site affords new revenue opportunities to service providers through advanced, Ethernet-based service offerings
- Using hardware-based Ethernet OAM standards allows detailed service assurance guarantees to be offered over the packet-based backhaul network
- E4G-400 routers provide the scale needed for trunking GbE ports together or using 10 GbE ports for cell site aggregation
- E4G-400 routers allow for a cost-effective transformation path to an Ethernet backhaul by providing E1/T1 interfaces.
- Powerful Carrier Ethernet platform in only a 1RU system, but accommodates up to 28 Gigabit Ethernet ports and 16 E1/T1 ports Resilient Ethernet rings, using G.8032 or EAPS, created from E4G-400 routers
- Provides lower capital costs (CapEx) than traditional SONET/SDH rings while still maintaining a 50ms failover time

## Key Features and Benefits

The 1RU size of the E4G-400 allows economical installation in cell site locations where space is limited. All Extreme Networks advanced routing and switching features, including IPv6, are available on this compact and powerful platform.

E4G-400 supports up to 16 ports for circuit emulations via industry-standard pseudowires, allowing the transformation of TDM aggregated cell sites to Ethernet/IP/MPLS aggregated cell sites.

Up to 6 optional active 10 GbE ports allow service providers to create protected rings and to interconnect to more networking services.

28 active GbE ports allow service providers to connect more 4G base stations and to trunk more cell sites together for growth, becoming the basis of the TDM-to-Ethernet backhaul transformation and aggregation and easing the transition for the service provider

Mobile backhaul networks require accurate timing. The E4G-400 provides today's existing TDM timing on it T1/E1 ports as well as Ethernet-based timing—both IEEE 1588v2 and SyncE—on its Ethernet ports.

Extreme Networks supports EAPS as well as the G.8032 Ethernet Ring Protection standard.

Support for IEEE 802.3ah, IEEE 802.1ag, and ITU Y.1731 gives management and reporting control over the Ethernet backhaul, including pseudowires, to provide integrated Ethernet OAM.

Functions in the hardware allow for mere microseconds of latency to improve performance of latency-sensitive applications that are a part of LTE rollouts.

Ports, services and OAM functions run at line rate with no degradation in service when the different feature sets are enabled.

Extreme Networks Ethernet Mobile Backhaul solutions are geared towards the unique demands of mobile operators. Our solutions offer support for multiple generations of services. Mobile operators can lower their capital expenses (CapEx) and operational expenses (OpEx) by reducing the number of network elements and simplifying operations. Our solutions can enable mobile operators to deliver a network that is geared towards the new mobile world, providing access, awareness and control from the cloud to the converged edge.

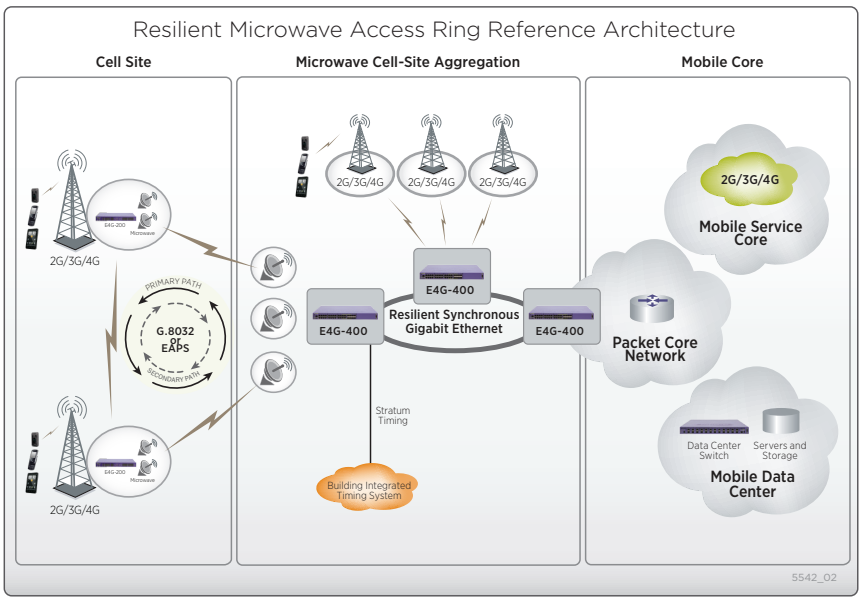



*Figure 1: Typical Network Architecture for Wireless Backhaul*

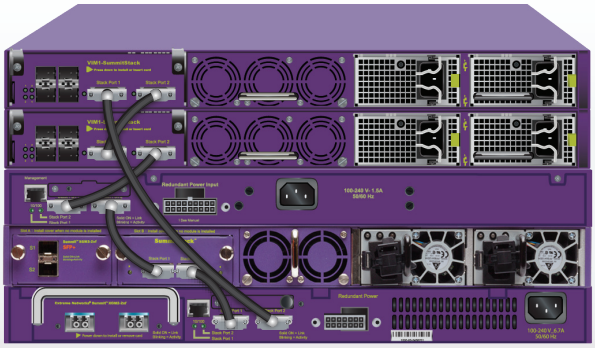
## Flexible Port Configuration

For E4G-400, with four dedicated Gigabit Ethernet fiber ports and four shared Gigabit Ethernet fiber ports, the switch can have up to 8 fiber GbE ports, while still providing 20 Gigabit Ethernet copper ports (PoE-plus or non-PoE). If higher density copper ports are required, the switch can provide up to 24 Gigabit Ethernet copper ports while providing 4 Gigabit Ethernet fiber ports. Through the two option slots, E4G-400 switches can be equipped with an additional six 10 Gigabit Ethernet ports.

## SummitStack-V—Flexible Stacking Over 10 Gigabit Ethernet

ExtremeXOS supports the new SummitStack-V capability to utilize 10 GbE ports as stacking ports, enabling the use of standard cabling and optics technologies used for 10 GbE such as XFP or SFP+. SummitStack-V provides long-distance stacking connectivity of up to 40 km while reducing the cable complexity of implementing a stacking solution. SummitStack-V is compatible with Summit X450e, X450a, X460, X480, X650, X670 and X670V switches running the same version of ExtremeXOS. SummitStack-V enabled 10 GbE ports must be physically direct-connected.

- Single management point for up to eight units
- High-speed 40 Gbps stacking
- Rapid Failover for converged applications
- Can mix Summit X250e, Summit X440 Series, Summit X450a/e,- Series, Summit X460, Summit X480, Summit X650 and Summit X670 Series switches for SummitStack™ 40 Gbps stacking



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## Platform Module Options

| Slot A | Slot B | Fan Slot | PSU Slot 1 | PSU Slot 2 |
|---|---|---|---|---|
| XGM3S-2xf Module | XGM3SB-4sf Module | Summit X460 FAN Module | Summit 300W AC PSU XT | Summit 300W AC PSU XT |
| XGM3S-2sf Mmodule | E4G-B16T1E1 Module | | Summit 300W DC PSU XT | Summit 300W DC PSU XT |

XGM3S-2xf Module

XGM3SB-4sf Module

XGM3S-2sf Module

E4G-B16T1E1 Module

# Technical Specifications

## Synchronization

- Internal Stratum-3 Clock (Telcordia GR-1244-CORE)
- Common Clock Distribution across All Ports
- External Reference Timing Input (BITS)
- Synchronous Ethernet (ITU-T G.8262)
- IEEE 1588v2 Precision Time Protocol
- Adaptive Clock Recovery (ACR) for TDM Pseudowires
- Differential Clock Recovery (DCR) for TDM Pseudowires

## Services

### Pseudowires

- CESoPSN – Structure-Aware Time Division Multiplexed (TDM) Circuit Emulation Service over Packet Switched Network
- SAToP – Structure-Agnostic Time Division Multiplexing (TDM) over Packet
- MEF 8 Implementation Agreement for the Emulation of PDH Circuits over Metro Ethernet Networks
- PWE3 Control Word for Use over an MPLS PSN
- Pseudowire Setup and Maintenance using the LDP or RSVP
- Encapsulation Methods for Transport of Ethernet over MPLS Networks

### VLANs

- VLAN Tagging
- Port-based VLANs
- Protocol-based VLANs
- MAC-based VLANs
- Multiple STP domains per VLAN
- Private VLANs
- Virtual MANs (vMANs)

### MPLS and VPN Services

- Multiprotocol Label Switching Architecture
- MPLS Label Stack Encoding
- RSVP Refresh Reduction
- Label Distribution Protocol (LDP)
- RSVP-TE: Extensions to RSVP for LSP Tunnels
- Traffic Engineering Extensions to OSPFv2
- Fast Re-route Extensions to RSVP-TE for LSP (Detour Paths)
- Detecting MPLS Data Plane Failures (LSP Ping)
- Bidirectional Forwarding Detection

### Layer 2 VPNs

- Pseudowire Setup and Maintenance using the Label Distribution Protocol (LDP)
- Encapsulation Methods for Transport of Ethernet over MPLS Networks
- Virtual Private LAN Services (VPLS) using Label Distribution Protocol (LDP) Signaling
- Pseudowire Virtual Circuit Connectivity Verification (VCCV)

## Resiliency

### Software

- Ethernet Automatic Protection Switching (EAPS)
- ITU G.8032v2 Ethernet Ring Protection
- Spanning Tree/Rapid Spanning Tree Protocols
- Software-Enhanced Availability
- Equal Cost Multipath
- Link Aggregation
- Multi-Switch LAG (M-LAG)
- 1:1 RSVP-TE LSP protection
- Bidirectional Forwarding Detection (BFD) based LSP protection

### Hardware

- Redundant Power Supplies – AC/AC, DC/DC, or AC/DC
- Hot swappable Fan Module

## Performance

**E4G-400-AC Router**

- Aggregated Switch Bandwidth: 176 Gbps
- Frame Forwarding Rate: 130.9 Mpps

**E4G-400-DC Router**

- Aggregated Switch Bandwidth: 176 Gbps
- Frame Forwarding Rate: 130.9 Mpps

- Latency: <4 micro seconds (64-byte)
- Max Packet Size: 9,216 Byte (Jumbo Frame)
- Total Trunks: 128 load sharing, Members per trunk: 8
- VLANs: 4,094
- Ingress ACLs: 4,192
- Egress ACLs: 512

**Forwarding Tables**

- Layer 2/MAC Addresses: 32K
- Layer 2/Multicast Groups: 1K
- IPv4 LPM Entries: 12K
- IPv6 LPM Entries: 6K

**CPU, Memory**

- Single Core CPU, 600 Mhz clock
- 1GB ECC DRAM
- 1GB Compact Flash

**QoS, Rate Limiting**

- Ingress bandwidth meters: 4,096
- Ingress metering granularity: 8 Kbps
- Ingress bandwidth policing/rate limiting per flow/ACL
- Egress QoS queues/port: 8
- Egress bandwidth rate shaping per egress queue and per port
- Egress rate granularity: 8 Kbps

**LED Indicators**

- Per port status LED including power status
- System Status LEDs: management, fan and power supplies

## External Ports

**E4G-400-AC Router**

- 24 x 10/100/1000BASE-T (RJ-45) - 4 ports are combo ports
- 8 x 100/1000BASE-X (SFP) unpopulated ports – 4 ports are combo ports
- 4 x mini-BNC Ports – 1 PPS Input, 1 10MHz Input, 1PPS/8k Output, 1 1.5/2.0/10 MHz Output
- 1 x RJ45 – RS422 BITS/TOD Input
- 1 x Serial (console port)
- 1 x 10/100BASE-T out-of-band management port
- 1 x USB port for external USB flash

**E4G-400-DC Router**

- 24 x 10/100/1000BASE-T (RJ-45) - 4 ports are combo ports
- 8 x 100/1000BASE-X (SFP) unpopulated ports – 4 ports are combo ports
- 4 x mini-BNC Ports – 1 PPS Input, 1 10MHz Input, 1PPS/8k Output, 1 1.5/2.0/10 MHz Output
- 1 x RJ45 – RS422 BITS/TOD Input
- 1 x Serial (console port)
- 1 x 10/100BASE-T out-of-band management port
- 1 x USB port for external USB flash

**XGM3S-2xf Module**

- • 2 x 10GBASE-X XFP (unpopulated ports)

**XGM3SB-4sf Module**

- 4 x 10GBASE-X SFP+ (unpopulated ports)

**XGM3S-2sf Module**

- 2 x 10GBASE-X SFP+ (unpopulated ports)

**E4G-B16T1E1 Module**

- 2 x MRJ21 ports (each MRJ21 maps to 8 ports of TDM E1/T1 for a total of 16 TDM ports)

## Weight and Physical Dimensions

**E4G-400-AC Router**

- Weight: 16.05 lb (7.2 kg)
- Height: 1.75 inches (4.4 cm)
- Width: 17.25 inches (43.8 cm)
- Depth 18.75 inches (43.2 cm)

**E4G-400-DC Router**

- Weight: 16.05 lb (7.2 kg)
- Height: 1.75 inches (4.4 cm)
- Width: 17.25 inches (43.8 cm)
- Depth 18.75 inches (43.2 cm)

**XGM3S-2xf Module**

- Weight: 0.5 lb (0.23 kg)
- Height: 1.4 inches (3.55 cm)
- Width: 2.9 inches (7.4 cm)
- Depth: 4.9 inches (12.5 cm)

# Technical Specifications

**XGM3SB-4sf Module**
- Weight: 0.5 lb (0.23 kg)
- Height: 1.4 inches (3.55 cm)
- Width: 3.4 inches (8.6 cm)
- Depth: 5.5 inches (13.9 cm)

**E4G-B16T1E1 Module**
- Weight: 1.25 lb (0.57 kg)
- Height: 1.4 inches (3.55 cm)
- Width: 3.4 inches (8.6 cm)
- Depth: 9.5 inches (24.1 cm)

**Summit 300W AC PSU XT**
- Weight: 2.30 lb (1 kg)
- Height: 1.57 inches (4.0 cm)
- Width: 3.15 inches (8.0 cm)
- Depth: 9.5 Inches (24.1 cm)

**Summit 300W DC PSU XT**
- Weight: 2.30 lb (1 kg)
- Height: 1.57 inches (4.0 cm)
- Width: 3.15 inches (8.0 cm)
- Depth: 9.5 Inches (24.1 cm)

**Summit X460 FAN Module**
- Weight: 0.66 lb (0.30 kg)
- Height: 1.6 inches (4.15 cm)
- Width: 3.25 inches (8.26 cm)
- Depth: 4.9 inches (12.53 cm)

## Environmental Specifications

**Operating Environment**
- -10° C to 50° C (-14° F to 122° F)
- Humidity: 10% to 95% relative humidity, non-condensing
- Altitude: 0 to 3,000 meters (9,850 feet)
- Shock (half sine): 30 m/s2 (3 G), 11 ms, 60 shocks
- Random vibration: 3 to 500 Hz at 1.5 G rms

**Fan Speed**
- Minimum: 2500 RPM
- Maximum: 15900 RPM

**Airflow**
- front to back

**Acoustic Noise**
- Fan, minimum: 48.8 dB
- Fan, full: 69..3 dB

**Storage and Transportation (Packaged)**
- Transportation Temperature: -40° C to 70° C (-40° F to 158° F)
- Storage and Transportation Humidity: 10% to 95% RH, non-condensing
- Packaged Shock (Half Sine): 180 m/s2 (18 G), 6ms, 600 shocks
- Packaged Sine Vibration: 5-62 Hz @ Velocity 5mm/s, 62-500 Hz @ 0.2G
- Packaged Random Vibration: 5-20 Hz @ 1.0 ASD w/-3dB/oct. from 20-200 Hz
- 14 drops min on sides & corners @ 42" (<15 kg box)

## Safety Standards
- UL 60950-1 2nd Ed., Listed Device (U.S.)
- CSA 22.2 #60950-1-03 2nd Ed. (Canada)
- Complies with FCC 21CFR 1040.10 (U.S. Laser Safety)
- CDRH Letter of Approval (US FDA Approval)
- EN 60950-1:2007 2nd Ed.
- EN 60825-1+A2:2001 (Lasers Safety)
- TUV-R GS Mark by German Notified Body
- 2006/95/EC Low Voltage Directive
- CB Report & Certificate per IEC 60950-1 2nd Ed. + National Differences
- AS/NZX 60950-1 (Australia /New Zealand)

## EMI/EMC Standards
- FCC CFR 47 part 15 Class A (USA)
- ICES-003 Class A (Canada)
- EN 55022:2006+A1:2007 Class A
- EN 55024:A2-2003 Class A includes IEC 61000-4-2, 3, 4, 5, 6, 11
- EN 61000-3-2,8-2006 (Harmonics)
- EN 61000-3-3 2008 (Flicker)
- ETSI EN 300 386 v1.4.1, 2008-04 (EMC Telecommunications)
- 2004/108/EC EMC Directive
- CISPR 22: 2006 Ed 5.2, Class A (International Emissions)
- CISPR 24:A2:2003 Class A (International Immunity)
- IEC 61000-4-2:2008/EN 61000-4-2:2009 Electrostatic Discharge, 8kV Contact, 15 kV Air, Criteria A
- IEC 61000-4-3:2008/EN 61000-4-3:2006+A1:2008 Radiated Immunity 10V/m, Criteria A
- IEC 61000-4-4:2004 am1 ed.2./EN 61000-4-4:2004/A1:2010 Transient Burst, 1 kV, Criteria A
- IEC 61000-4-5:2005 /EN 61000-4-5:2006 Surge, 2 kV L-L, 2 kV L-G, Level 3, Criteria A
- IEC 61000-4-6:2008/EN 61000-4-6:2009 Conducted Immunity, 0.15-80 MHz, 10V/m unmod. RMS, Criteria A
- IEC/EN 61000-4-11:2004 Power Dips & Interruptions, >30%, 25 periods, Criteria C
- VCCI Class A (Japan Emissions)
- ACMA (C-Tick) (Australia Emissions)
- CCC Mark
- KCC Mark, EMC Approval (Korea)

## Telecom Standards
- ETSI EN 300 386:2001 (EMC Telecommunications)
- ETSI EN 300 019 (Environmental for Telecommunications)
- NEBS Level 3 certified to portions of GR-1089 Issue 4 & GR-63 Issue 3 as defined in SR3580 with exception to filter requirement
- MEF 9 compliant
- MEF 14 compliant

## IEEE 802.3 Media Access Standards
- IEEE 802.3ab 1000BASE-T
- IEEE 802.3z 1000BASE-X
- IEEE 802.3 Media Access Standards

## Environmental Standards
- EN/ETSI 300 019-2-1 v2.1.2 - Class 1.2 Storage
- EN/ETSI 300 019-2-2 v2.1.2 - Class 2.3 Transportation
- EN/ETSI 300 019-2-3 v2.1.2 - Class 3.1e Operational
- EN/ETSI 300 753 (1997-10) - Acoustic Noise
- ASTM D3580 Random Vibration Unpackaged 1.5 G

## Warranty
- Ltd. 1-year on Hardware
- 90-days on Software
- For warranty details, visit http://www.extremenetworks.com/go/warranty

## Power Connections

| Model | Power Supply Input Socket | Power Cord Input Plug / Input Socket | Power Supply Cord Gauge |
|---|---|---|---|
| E4G-400-AC Router | IEC 320 C14 | IEC 320 C13 / C14 | 18 AWG (0.75 mm2) up to 6 feet or 2 meters or 16 AWG (1.0 mm2) over 6 feet |
| E4G-400-DC Router | 2-pin terminal block socket | n/a | 14 AWG (1.5 mm2) copper stranded |
| Summit 300W AC PSU XT | IEC 320 C14 | IEC 320 C13 / C14 | 18 AWG (0.75 mm2) up to 6 feet or 2 meters or 16 AWG (1.0 mm2) over 6 feet |
| Summit 300W DC PSU XT | 2-pin terminal block socket | n/a | 14 AWG (1.5 mm2) copper stranded |

# Technical Specifications

## Power Consumtion

| Switch Model | Nominal input ratings | Input Current at Full Load | Input Power at Full Load | Heat Dissipation | Efficiency |
|---|---|---|---|---|---|
| E4G-400-AC Router | 100 to 240 V , 50/60 Hz, 5 A | 5 A @ 100 V (low-line)<br>2.5 A @ 240 V (high-line) | 87 W | 87 W, 297 BTU/hr | 85% (low-line) 86% (high-line) |
| E4G-400-DC Router | 40 to 72 V , 9 A | 7 A @ 48 V (low-line)<br>5.6 A @ 60 V (high-line) | 87 W | 87 W, 297 BTU/hr | |
| E4G-400-AC/ Router with Slot A populated | 100 to 240 V , 50/60 Hz, 5 A | 5 A @ 100 V (low-line)<br>2.5 A @ 240 V (high-line) | 107 W | 107 W, 365 BTU/hr | 85% (low-line) 86% (high-line) |
| E4G-400-DC/ Router with Slot A populated | 40 to 72 V , 9 A | 7 A @ 48 V (low-line)<br>5.6 A @ 60 V (high-line) | 107 W | 107 W, 366 BTU/hr | |
| E4G-400-AC/ Router with Slot B populated | 100 to 240 V , 50/60 Hz, 5 A | 5 A @ 100 V (low-line)<br>2.5 A @ 240 V (high-line) | 93 W | 93 W, 317 BTU/hr | 85% (low-line) 86% (high-line) |
| E4G-400-DC/ Router with Slot B populated | 40 to 72 V , 9 A | 7 A @ 48 V (low-line)<br>5.6 A @ 60 V (high-line) | 94 W | 94 W, 319 BTU/hr | |
| E4G-400-AC/ Router with Slot A & Slot B populated | 100 to 240 V , 50/60 Hz, 5 A | 5 A @ 100 V (low-line)<br>2.5 A @ 240 V (high-line) | 104 W | 104 W, 355 BTU/hr | 85% (low-line) 86% (high-line |
| E4G-400-DC/ Router with Slot A & Slot B populated | 40 to 72 V , 9 A | 7 A @ 48 V (low-line)<br>5.6 A @ 60 V (high-line) | 105 W | 105 W, 358 BTU/hr | |

## Ordering Information

| Part Number | Name | Description |
|---|---|---|
| 16431 | E4G-400-AC/router | 24 x 10/100/1000BASE-T, 8 x 100/1000BASE-X unpopulated SFP (4 SFP ports shared with 10/100/1000BASE-T ports),Rear Slot A, Rear Slot B, with AC Power Supply, Fan module |
| 16432 | E4G-400-DC/router | 24 x 10/100/1000BASE-T, 8 x 100/1000BASE-X unpopulated SFP (4 SFP ports shared with 10/100/1000BASE-T ports),Rear Slot A, Rear Slot B, with DC Power Supply, Fan module |
| 16119 | XGM3S-2xf/module | 2 x 10GbE XFP port interface module - rear pluggable in Slot A, supporting SummitStack-V (and SyncE when used with E4G-400) |
| 16120 | XGM3SB-4sf/module | 4 x 10GbE SFP+ ports - rear pluggable in Slot B, (supporting SyncE when used with E4G-400) |
| 16126 | XGM3S-2sf/module | 2 x 10GbE SFP+ port interface module - rear pluggable in Slot A, supporting SummitStack-V (and SyncE when used with E4G-400) |
| 16127 | E4G-B16T1E1/module | 2 x MRJ21 ports for 16 T1/E1 pseudowire emulation & 2 x SMA port for synchronization input/output - rear pluggable in Slot B |
| 16220 | E4G TDM Break-Out Cable | TDM connectivity breakout cable that provides 1 x MRJ21 to 8 x RJ48c for use with TDM modules using MRJ21 connectors |
| 10930A | Summit 300W AC PSU XT | 300W AC Power Supply module for Summit X460 & E4G-400 Series Switches - Extended Temparture Range from -10 to +50 degrees Celsius |
| 10934A | Summit 300W DC PSU XT | 300W DC Power Supply module for Summit X460 & E4G-400 Series Switches- Extended Temparture Range from -10 to +50 degrees Celsius |
| 10935 | Summit X460 FAN Module | FAN Module for Summit X460 & E4G-400 Series Switches, spare |
| 16495 | E4G400 Ntwrk Timing 1588 PTP | ExtremeXOS Network Timing Feature Pack for E4G-400 that enables 1588v2 PTP (Precision Time Protocol) |
| 10301 | 10GBASE-SR SFP+ | 10GBASE-SR SFP+, 850nm, LC Connector, transmission length of up to 300m on MMF |
| 10302 | 10GBASE-LR SFP+ | 10GBASE-LR SFP+, 1310nm, LC Connector, transmission length of up to 10km on SMF |

## Ordering Information, Continued

| Part Number | Name | Description |
|---|---|---|
| 10309 | 10GBASE-ER SFP+ | 10GBASE-ER SFP+, 1550nm, LC connector, transmission length of up to 40km on SMF |
| 10303 | SFP+ LRM Module | 10 Gigabit Ethernet SFP+ module, 1310nm, legacy MMF 220m link, LC connector |
| 10304 | 10GBASE-CR SFP+ 1m | 10GBASE-CR SFP+ pre-terminated twin-ax copper cable with link lengths of 1m |
| 10305 | 10GBASE-CR SFP+ 3m | 10GBASE-CR SFP+ pre-terminated twin-ax copper cable with link lengths of 3m |
| 10306 | 10GBASE-CR SFP+ 5m | 10GBASE-CR SFP+ pre-terminated twin-ax copper cable with link lengths of 5m |
| 10307 | 10GBASE-CR SFP+ 10m | 10GBASE-CR SFP+ pre-terminated twin-ax copper cable with link lengths of 10m |
| 10051 | 1000BASE-SX SFP | 1000BASE-SX SFP, LC Connector |
| 10052 | 1000BASE-LX SFP | 1000BASE-LX SFP, LC Connector |
| 10053 | 1000BASE-ZX SFP | 1000BASE-ZX SFP, Extra Long Distance SMF 70 km/21 dB Budget, LC Connector |
| 10056 | 1000BASE-BX-D SFP | 1000BASE-BX-D SFP, SMF (1490nm TX/1310nm RX Wavelength) |
| 10057 | 1000BASE-BX-U SFP | 1000BASE-BX-U SFP, SMF (1310nm TX/1490nm RX Wavelength) |
| 10060 | 100FX/1000LX SFP | 100FX/1000LX SFP, SMF, LC Connector (Requires MCP and 6dB Attenuator for 100FX-MMF Operation) |
| 10063 | 100FX SFP | 100FX SFP, MMF, LC Connector |
| 10064 | 1000BASE-LX100 SFP | 1000BASE-LX100 SFP, Extra Long Distance SMF 100 km/30dB Budget, LC Connector |
| 100651 | 10/100/1000Base-T SFP | 10/100/1000BASE-T SFP module, Category 5 cable 100m link, RJ45-Connector |
| 10067 | 100BASE-FX SFP | 100M SFP, 100FX MMF, (1310nm, 2km multimode transmission) LC connector |
| 10066 | 100BASE-LX10 SFP | 100M SFP, 100LX10 SMF, (1310nm 10km single mode transmission) LC connector |
| 10058 | 100BASE-BX-D SFP | 100M SFP, 100BASE-BX-D, SMF (1550nm TX/1310nm RX wavelength), 100 Mbps bidirectional |
| 10059 | 100BASE-BX-U SFP | 100M SFP, 100BASE-BX-U, SMF (1310nm TX/1550nm RX wavelength), 100 Mbps bidirectional |
| 10071 | SX SFP 10 Pack | SX-SFP 10 Pack |
| 10072 | LX SFP 10 Pack | LX-SFP 10 Pack |
| 10051H | 1000BASE-SX SFP, Hi | 1000BASE-SX SFP, MMF 220 & 550 meters, LC connector, Industrial Temp |
| 10053H | 1000BASE-ZX SFP, Hi | 1000BASE-ZX SFP, SMF 70km, LC connector, Industrial Temp |
| 10071H | 1000BASE-SX SFP 10 Pack, Hi | 1000BASE-SX SFP 10 Pack, Industrial Temp |
| 10072H | 1000BASE-LX SFP 10 Pack, Hi | 1000BASE-LX SFP 10 Pack, Industrial Temp |

*Make Your Network Mobile*

**Corporate and North America**
Extreme Networks, Inc.
3585 Monroe Street
Santa Clara, CA 95051 USA
Phone +1 408 579 2800

**Europe, Middle East, Africa and South America**
Phone +31 30 800 5100

**Asia Pacific**
Phone +65 6836 5437

**Japan**
Phone +81 3 5842 4011

**extremenetworks.com**