SecureStack A2 Switch Family

- High-density, high-availability stackable 10/100 switching
- Closed-loop redundant stacking to assure continuous stack operation
- QoS support for VoIP and real-time broadcast/multicast
- Power-over-Ethernet models available
- Complete stack management via NetSight®, Web or CLI

- **High performance, high density**
  - Up to 384 10/100 ports 16 gigabit uplinks in a single stack
- **High-availability services**
  - IEEE 802.3ad Link Aggregation
  - Ethernet Flow Control
  - IGMP snooping v1 & v2
  - Closed Loop Stacking
  - Optional redundant power
  - Redundant stack management
- **Advanced Quality of Service**
  - Extensive traffic classification capabilities
  - Ingress rate limiting
  - Extensive VLAN support
- **Sophisticated Security**
  - IEEE 802.1x Authentication
  - SSH and RADIUS

High-Performance and High-Availability Stacking

The SecureStack A2 stackable switch family delivers cost-effective Layer 2 switching in a single stack with up to 384 10/100 ports with 16 gigabit uplinks. Reliability and availability is assured with support for Closed Loop Stacking, redundant core connections, redundant power options and redundant stack management.

Each SecureStack A2 switch has two mini-GBIC (SFP) ports and two fixed 10/100/1000 ports that can be used as standard Ethernet uplinks but can also be used as stacking ports that support up to 2 Gbps of bi-directional bandwidth between any two adjacent switches. No additional stack module is required to stack the switches. A single stack can be comprised of any combination of SecureStack A2 switches allowing a mixture of 24- and 48-port 10/100, 100Base-FX and Power-over-Ethernet ports to be linked to the network core via copper, multimode fiber and/or single-mode fiber Gigabit. Closed Loop Stacking is implemented, which assures that a single switch or cable connection failure in the stack will not impact the overall stack operation. The SecureStack A2 stack auto-configures, allowing stack switch units to be added or removed with minimal packet interruption. Up to eight SecureStack A2 switches can be supported in a stack with a single IP address for complete stack management. Redundant stack management is supported by assigning a primary and multiple secondary stack managers.

Switching Services

All SecureStack A2 switches support standards-based switching. The IEEE standards for switching (IEEE 802.1D MAC Bridges) and IEEE 802.1t (802.1D Maintenance), as well as Multiple Spanning Trees (IEEE 802.1s) and Rapid Reconvergence (IEEE 802.1w), are fully supported. All switches support up to 8,000 addresses and have four hardware queues per port. Ethernet Flow Control (IEEE 802.3x) as well as standards-based Link Aggregation (IEEE 802.3ad) are fully supported in every switch model. In addition, all switches support IGMP Snooping v1 and v2.

Traffic Classification and QoS

A major component for supporting converged networks is traffic classification. All SecureStack A2 switches deliver Layer 2/3/4 packet classification and marking at the edge based on any of the following:

- MAC address
- Physical port
- IP address
- IP protocol
- IP ToS/DSCP marking
- TCP/UDP port
- IP subnet

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Networks that Know

The classification capabilities combined with four priority queues per port allow the SecureStack A2 to rate limit port traffic granularly. Weighted Round Robin (WRR) Queuing is supported. Support for the IP Differentiated Services Code Point (DSCP) enables the switches to enforce requested service levels.

VLAN Support

All SecureStack A2 switches have extensive VLAN support, with 4,096 VLAN IDs supported and up to 1,024 VLANs active simultaneously in a single stack. Receive port identification may be used to assign a user to a specific VLAN. All switches support IEEE 802.1Q tagged and port-based VLANs with full support for the GARP and GVRP protocols.

Extensive Security

Security is vital to all networks today and with SecureStack A2 switches the network is protected at the first point of entry (user access). IEEE 802.1X Authentication can be enforced on all ports. In addition, all SecureStack A2 switches support VLANs and RADIUS. Strong authentication and encryption for the switch is provided via Secured Shell (SSH) and RADIUS.

Authentication to VLAN Mapping

Support for RFC3580 VLAN Mapping is included in the basic SecureStack A2 firmware, which enables an end user to be mapped to the appropriate VLAN automatically upon being authenticated via IEEE 802.1X.

Robust Switch and Stack Management

All SecureStack A2 switches are fully manageable using an industry-standard command line interface, embedded Web interface, Telnet with SSH, and SNMP management applications such as NetSight. Every SecureStack A2 switch supports four groups of RMON (History, Statistics, Alarms, Events) and SNMP v1/2 and v3. Configuration files can be edited with any ASCII editor and can be uploaded and downloaded from a switch. A SecureStack A2 stack can be managed as a single network entity and only a single IP address is required to manage the complete stack. There is no need to download software images to individual stack units; only one software upgrade needs to be performed per stack. The image will be distributed to the individual stack members automatically. Port-mirroring is supported on individual switches as well as stack-wide, enabling network managers to easily monitor and troubleshoot any port in the stack.

Reliability and Availability

The SecureStack A2 offers a variety of standards-based features to ensure network availability.

These features include 802.1D Spanning Tree, 802.1w Rapid Spanning Tree, 802.1s Multiple Spanning Trees and 802.3ad Link Aggregation. All of these standards allow for redundant network connections, automatic failover and recovery capabilities. The SecureStack A2 switches support additional reliability features such as Distributed Link Aggregation Groups (6 groups of 4 ports)—a capability that supports link aggregation across multiple stack units thereby ensuring that a failure in a single unit does not disconnect the stack from the uplink to the core switch. Redundant stack management is supported where there is a primary and one backup for managing the stack entity. All SecureStack A2 switches support Closed Loop Stacking, which enables the stack to continue working even if an individual switch member or cable connection fails. Power redundancy is available as an option for both the Power-over-Ethernet and standard Ethernet SecureStack A2 switches. The redundant power options are the same as those used by the SecureStack C2 and allow a switch to operate from its own internal AC power supply or, if there is a failure, seamlessly failover to the external redundant power system.

Power-over-Ethernet (PoE IEEE 802.3af) Support

Two switch models in the SecureStack A2 product family provide a centralized IEEE 802.3af compliant power source for VoIP phones, wireless access points (e.g., RoamAbout AP4102), and remote security scanners and cameras, eliminating the need for individual power sources for these devices. Both switches provide 48 volts of power over the normally used pairs of each Category 5 Ethernet cable with a total of 360 watts of power per switch. The 24-port model can deliver Class 1 power to all ports while the 48-port model can deliver Class 2 support to all ports if they require Power over Ethernet. Any individual port on either switch can provide up to the maximum 15.4 watts specified in the IEEE standard. The network manager has the ability to prioritize which ports receive power if the power demand exceeds the switch total of 360 watts. Special power-shedding support is included in both switches to enforce the network-manager-specified priorities if the power demand exceeds the maximum wattage. Additionally, the SecureStack A2 PoE switches support a device-detection feature that enables them to work with powered as well as non-powered end devices. This feature prevents any damage from occurring when a port on either Matrix PoE switch is connected to any compliant RJ45 device that is already powered by its own power source. This feature also allows any mixture of Power-over-Ethernet devices and standard Ethernet devices to be connected to a single switch. These SecureStack A2 PoE switches significantly simplify the installation and capital costs of APs, VoIP phones and security devices by allowing them to be installed in out-of-the-way locations that are without AC power thereby enabling maximum coverage.

Outstanding Configuration Flexibility

With the SecureStack A2 switch family, mixing and matching 10/100, 100Base-FX and 10/100 POE switches in a single stack is a snap. A small stack can be started with dual 10/100 switches with redundant Gigabit Ethernet uplinks to the core. If Power over Ethernet is needed for remote access points or a trial test of VoIP phones, a 10/100 PoE switch can simply be added to the stack. If there is a demand for fiber ports, 100Base-FX switches can be added. As the stack grows, the demands on the uplinks to the core will increase. Distributed Link Aggregation can be used to increase bandwidth from a single gigabit up to four gigabit. All of these various types of switches can be managed as a single entity with a single IP address and all of the switches in the stack run a common software image so there are no incompatibility issues between the switches. The simple flexibility of the SecureStack A2 stacking makes it an elegant solution.

The SecureStack A2 Switch Family

A2H124-24

This SecureStack A2 switch features 24 ports of 10/100 connectivity, two uplink ports supporting SFP (Small Form-factor Pluggable) GBICs and two fixed 10/100/1000 ports that can be used as stacking ports or gigabit uplink ports. All 28 front-panel ports can be active simultaneously.

A2H124-48

This SecureStack A2 switch features 48 ports of 10/100 connectivity, two uplink ports supporting SFP (Small Form-factor Pluggable) GBICs and two fixed 10/100/1000 ports that can be used as stacking ports or gigabit uplink ports. All 52 front-panel ports can be active simultaneously.

A2H124-24P

This SecureStack A2 switch features 24 ports of 10/100 with Power-over-Ethernet capability, two uplink ports supporting SFP (Small Form-factor Pluggable) GBICs and two fixed 10/100/1000 ports that can be used as stacking ports or gigabit uplink ports. All 28 front-panel ports can be active simultaneously.

A2H124-48P

This SecureStack A2 switch features 48 ports of 10/100 with Power-over-Ethernet capability, two uplink ports supporting SFP (Small Form-factor Pluggable) GBICs and two fixed 10/100/1000 ports that can be used as stacking ports or gigabit uplink ports. All 52 front-panel ports can be active simultaneously.

A2H124-24FX

This SecureStack A2 switch features 24 ports of 100Base-FX connectivity, two uplink ports supporting SFP (Small Form-factor Pluggable) GBICs and two fixed 10/100/1000 ports that can be used as stacking ports or gigabit uplink ports. All 28 front-panel ports can be active simultaneously.

C2RPS-PSM

This SecureStack 150-watt DC power supply can be used as a redundant power supply for any of the SecureStack A2 non-Power-over-Ethernet switches (A2H124-24, A2H124-48, and A2H124-24FX). The 150-watt power supply can be mounted in a SecureStack RPS chassis (C2RPS-SYS, C2RPS-CHAS8 or C2RPS-CHAS2). A single power supply can power one switch if that switch loses AC power.

C2RPS-SYS

This SecureStack RPS bundle includes a chassis that supports up to eight individual 150-watt redundant power supplies (C2RPS-PSM). The bundle includes the basic chassis (C2RPS-CHAS8), which can be rack mounted, and one 150-watt redundant power supply.

C2RPS-POE

This SecureStack 500-watt DC power unit can be used as redundant power for any of the SecureStack A2 Power-over-Ethernet switches (A2H124-24P or A2H124-48P). Since the SecureStack A2 PoE switches provide up to 360 watts of PoE power, a much larger redundant power supply is required. This RPS is a rack-mountable unit and does not require an additional chassis.

C2RPS-CHAS8

This SecureStack rack-mountable RPS power chassis supports up to eight individual 150-watt redundant power supplies (C2RPS-PSM). RPS units are mounted vertically in the chassis.

C2RPS-CHAS2

This SecureStack rack-mountable RPS power chassis supports up to two individual 150-watt redundant power supplies (C2RPS-PSM). RPS units are mounted horizontally in the chassis.

Stacking Notes

- Standard CAT5 Ethernet cables may be used for stacking SecureStack A2 switches.

- Cables up to 100 meters in length (standard Gigabit Ethernet lengths) may be used yielding a physically distributed stack.

- The SecureStack A2 switches CANNOT be stacked with either SecureStack B2 or C2 switches.

Specifications Common to All Switch Models

Technical Specifications

Address Table Size
8,000

Throughput Capacity
148,810 pps per Fast Ethernet port
1,488,100 pps per Gigabit Ethernet port

Switching Capacity
12.8 Gbps for 24 port models
17.6 Gbps for 48 port models

VLANs
4,096 VLAN IDs
1,024 VLAN entries per stack

Priority Queues
Eight per port

Embedded Services
Multilayer Packet Processing
Layer 2/3/4 classification
Ingress Rate Limiting

Switching Services
IEEE 802.1D (MAC Bridges)
IEEE 802.1t (802.1D Maintenance)
IEEE 802.3ad (Link Aggregation)
IEEE 802.1w (Rapid Reconvergence)
IEEE 802.1s (Multiple Spanning Trees)
IEEE 802.3x (Flow Control)
IGMP Snooping v1/v2

VLAN Support
IEEE 802.1Q VLAN
Tagged-based VLAN
Port-based VLAN
GVRP protocol
GARP

Quality of Service
IP DSCP
IP precedence
Protocol
Source IP
Destination IP
Source MAC
Destination MAC

Security
IEEE 802.1X Port Authentication
RADIUS Client
Password protection (encryption)
Secured Shell (SSHv2)
Syslog

RFC and MIB Support
RFC 826—ARP and ARP Redirect
RFC 951, RFC 1542—DHCP/BOOTP relay
RFC 2131, RFC 3046—DHCP client//relay
RFC 2819—RMON-MIB
RFC 1213—RFC1213-MIB/MIB II
RFC 1493—BRIDGE-MIB
RFC 1643—Ethernet-like MIB
RFC 2233—IF-MIB
RFC 2674—P-BRIDGE-MIB
RFC 2674—QBRIDGE-MIB VLAN Bridge MIB
IEEE 802.1X MIB—Port Access
RFC 2620—RADIUS Accounting Client MIB
RFC 2618—RADIUS Authentication Client MIB
RFC 2933—IGMP MIB
RFC 3580
Enterasys Entity MIB

Specifications Common to All Switch Models (continued)

Physical Specifications

Safety
UL 60950, CSA 60950, EN 60950, EN 60825, IEC 60950

Electromagnetic Compatibility
47 CFR Parts 2 and 15, CSA C108.8, EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR 22, VCCI V-3

Environmental Specifications

Power Requirements
Nominal Input Voltages: 100V to 240V
Input Frequency: 47Hz to 63Hz

Temperature
IEC 68-2-14
Standard Operating: 0° C to 50° C (32° F to 122° F)
Non-Operating: -40° C to 70° C (40° F to 158° F)

Humidity
5% to 95% (Non-condensing)

Vibration
IEC 68-2-36, IEC 68-2-6

Shock
IEC 68-2-29

Drop
IEC 68-2-32

Specifications for Each Switch Model

A2H124-24 SecureStack A2 Switch

Dimensions
44.1 cm (17.36") W x 4.4 cm (1.73") H x 21.0 cm
(8.27") D

Weight
2.61 kg (5.75 lbs)

Physical Ports
24 10/100 auto-sensing, auto-negotiating auto MDI/MDI-
X RJ45 ports
2 SFP GBIC ports
2 10/100/1000 ports for uplinks or stacking ports
1 DB9 console port
1 RPS port

Amperage
110V/0.5A; 220V/0.47A

Power Consumption
29W

Heat Dissipation
99 BTU/Hr

MTBF (predicted)
124,279 hours

A2H124-48 SecureStack A2 Switch

Dimensions
44.1 cm (17.36") W x 4.4 cm (1.73") H x 36.85 cm
(14.51") D

Weight
4.73 kg (10.42 lbs)

Physical Ports
48 10/100 auto-sensing, auto-negotiating auto MDI/MDI-
X RJ45 ports
2 SFP GBIC ports
2 10/100/1000 ports for uplinks or stacking ports
1 DB9 console port
1 RPS port

Amperage
110V/0.82A; 220V/0.42A

Power Consumption
45W

Heat Dissipation
154 BTU/Hr

MTBF (predicted)
115,219 hours

A2H124-24P SecureStack A2 Switch

Dimensions
44.1 cm (17.36") W x 4.4 cm (1.73") H x 36.85 cm
(14.51") D

Weight
5.78 kg (12.73 lbs)

Physical Ports
24 10/100 PoE auto-sensing, auto-negotiating auto
MDI/MDI-X RJ45 ports
2 SFP GBIC ports
2 10/100/1000 ports for uplinks or stacking ports
1 DB9 console port
1 RPS port

Amperage
110V/4.1A; 220V/2.04A

Power Consumption
446W

Heat Dissipation
1522 BTU/HR

MTBF (predicted)
201,377 hours

Power-over-Ethernet
IEEE 802.3af compliant
Total PoE power of 360 W
Average of 15.0 watts per port (Class 1)
Per-port enable/disable
Per-port priority safety
Per-port overload and short circuit protection
System power monitor

A2H124-48P SecureStack A2 Switch

Dimensions
44.1 cm (17.36") W x 4.4 cm (1.73") H x 36.85 cm
(14.51") D

Weight
6.39 kg (14.08 lbs)

Specifications for Each Switch Model (continued)

Physical Ports
48 10/100 PoE auto-sensing, auto-negotiating auto
MDI/MDI-X RJ45 ports

2 SFP GBIC ports
2 10/100/1000 ports for uplinks or stacking ports
1 DB9 console port
1 RPS port

Amperage
110V/4.23A; 220V/2.1A

Power Consumption
463W

Heat Dissipation
1580 BTU/HR

MTBF (predicted)
169,150 hours

Power-over-Ethernet
IEEE 802.3af compliant
Total PoE power of 360 W
Average of 7.5 watts per port (Class 2)
Per-port enable/disable
Per-port priority safety
Per-port overload and short circuit protection
System power monitor

A2H124-24FX SecureStack A2 Switch

Dimensions
44.1 cm (17.36") W x 4.4 cm (1.73") H x 21.0 cm
(8.27") D

Weight
2.7 kg (5.94 lbs)

Physical Ports
24 100Base-FX MTRJ ports
2 SFP GBIC ports
2 10/100/1000 ports for uplinks or stacking ports
1 DB9 console port
1 RPS port

Heat Dissipation
174 BTU/HR

MTBF (predicted)
53,501 hours

Redundant Power Supply Specifications

C2RPS-PSM Power Supply

Physical Specifications

Dimensions
19.6 cm (7.7") x 5.2 cm (2.04") x 25.7 cm (10.1"

Net Weight (Unit Only)
1.75 kg (3.85 lbs)

Gross Weight (Packaged Unit)
3.20 kg (7.04 lbs)

MTBF
300,000 hours

Environmental Specifications

Operating Temperature
5° C to 40° C (41° F to 104° F)

Storage Temperature
-30° C to 73° C (-22° F to 164° F)

Operating Relative Humidity
10% to 90%

Electrical Specifications

AC Input Frequency Range
47-63 Hz

AC Input Voltage Range
85-264 VAC Hz

Maximum Output Power
102 W or 156 W continuous

C2RPS-POE Power Supply

Physical Specifications

Dimensions
4.45 cm (1.75") x 44.5 cm (17.5") x 16.5 cm (6.5")

Net Weight (Unit Only)
3.47 kg (7.63 lbs)

Gross Weight (Packaged Unit)
4.95 kg (10.89 lbs)

MTBF
589,644 hours at 25° C (77°F)

Environmental Specifications

Operating Temperature
5° C to 40° C (41° F to 104° F)

Storage Temperature
-30° C to 73° C (-22° F to 164° F)

Operating Relative Humidity
10% to 90%

Electrical Specifications

AC Input Frequency Range
47-63 Hz

AC Input Voltage Range
90-264 Vac

Maximum Output Power
500 W

C2RPS-CHAS2 SecureStack Power Shelf

Power Supply Slots
2

Dimensions*
48.2 cm (19.0") x 5.5 cm (2.2") x 18.0 cm (7.0")

Weight
0.95 kg (2.09 lbs)

*Note: dimensions include integrated rackmount ears.

C2RPS-CHAS8 SecureStack Power Shelf

Power Supply Slots
8

Dimensions
44.0 cm (117.3") x 22.26 cm (8.77") x 26.4 cm (10.4")

Weight
5.27 kg (11.6 lbs)

Ordering Information

SecureStack A2 Switches

A2H124-24
SecureStack A2 with 24 10/100 ports via RJ45, two Mini-GBIC ports and two fixed 10/100/1000 stacking/uplink ports

A2H124-48
SecureStack A2 with 48 10/100 ports via RJ45, two Mini-GBIC ports and two fixed 10/100/1000 stacking/uplink ports

A2H124-24FX
SecureStack A2 with 24 100Base-FX ports via MTRJ, two Mini-GBIC uplink ports and two fixed 10/100/1000 stacking/uplink ports

SecureStack A2 Power-over-Ethernet Switches

A2H124-24P
SecureStack A2 with 24 10/100 Power-over-Ethernet ports via RJ45, two Mini-GBIC uplink ports and two fixed 10/100/1000 stacking/uplink ports

A2H124-48P
SecureStack A2 with 48 10/100 Power-over-Ethernet ports via RJ45, two Mini-GBIC uplink ports and two fixed 10/100/1000 stacking/uplink ports

SecureStack Optional Redundant Power

C2RPS-PSM
SecureStack 150-watt redundant non-PoE power supply with one DC cable

C2RPS-CHAS8
SecureStack RPS chassis supporting up to eight C2RPS-PSMs

C2RPS-SYS
SecureStack RPS chassis plus one C2RPS-PSM (chassis supports up to eight C2RPS-PSMs)

C2RPS-POE
SecureStack 500-watt redundant PoE power supply with one DC cable

C2RPS-CHAS2
SecureStack RPS chassis (chassis supports up to two C2RPS-PSMs)

Cables

SSCON-CAB
SecureStack console cable (for use on A2, B2 or C2 switches)

Ordering Information (continued)

MGBIC Modules

MGBIC-LC01
Mini-GBIC with 1000Base-SX via LC connector

MGBIC-LC03
Mini-GBIC with 1000Base-LX/LH (2 Km Long Haul) MMF via LC connector

MGBIC-08
Mini-GBIC with 1000Base-LX/LH (70 Km Long Haul) SMF via LC connector

MGBIC-LC09
Mini-GBIC with 1000Base-LX via LC connector

MGBIC-02
Mini-GBIC with 1000Base-T via RJ45 connector

MGBIC-MT01
Mini-GBIC with 1000Base-SX via MTRJ connector

Warranty

As a customer-centric company, Enterasys is committed to providing the best possible workmanship and design in our product set. Enterasys offers a limited lifetime warranty on the Enterasys SecureStack A2 that covers the complete switch including power supplies and fans. This warranty also includes advance replacement (next-business-day replacement or shipment depending upon geography) of any failed switch. Please refer to the Enterasys website for full warranty details.

Service and Support

Enterasys understands that superior service and support is a critical component of *Networks that Know*.™ The Enterasys **SupportNet Portfolio**—a suite of innovative and flexible service and support offerings—completes the Enterasys solution. SupportNet offers all the post-implementation support services you need—online, onsite or over the phone—to maintain your network availability and performance.

Additional Information

For additional information on the Matrix, visit **http://www.enterasys.com/products/switching**

Contact Information

Contact Enterasys Sales at **877-801-7082** or **enterasys.com/corporate/contact/contact-sales.html**

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