



x900-24X SERIES

Enhanced Gigabit Layer 3+ Expandable Switch

x900-24XT

2 x 30Gbps expansion bays
24 x 10/100/1000BASE-T (RJ-45) copper ports

x900-24XT-N

NEBS Compliant¹
2 x 30Gbps expansion bays
24 x 10/100/1000BASE-T (RJ-45) copper ports

x900-24XS

2 x 30Gbps expansion bays
24 x 1000BASE-X SFP ports

Unmatched Flexibility

The x900-24X Layer 3+ switches have two high-speed 30Gbps expansion bays which provide a high level of port flexibility and application versatility unmatched by any other 1RU Gigabit Ethernet switch on the market. The expansion modules can be used in a variety of configurations to provide tailored solutions that meet wide-ranging physical networking requirements.

10GbE expansion modules and hot-swappable XFPs provide high-speed, high-capacity fiber uplinks, with the option of either 10Gbps or 20Gbps uplink capacity to the network core. Resiliency can be achieved by using two 10GbE modules and MSTP (802.1s) for fast failover on link failure. This is suitable for wiring closet aggregation of gigabit to the desktop links and aggregating gigabit uplinks from other network switches.

Ethernet Protected Switched Rings (EPSR) and 10 GbE modules allow several x900-24X switches to form a protected ring with sub 50ms failover. This feature is perfect for high performance at the core of enterprise or provider access networks.

Combined with one or two 12-port 10/100/1000BASE-T (RJ-45) copper expansion modules, the x900-24X is ideal for gigabit to the desktop or gigabit aggregation applications. The 12 x 1000BASE-X (SFP) expansion

Key Features

- RoHS compliant
- Performance**
 - Layer 2 and 3 switching and routing at wire-speed
 - Full IPv4 and IPv6 routing
 - Built from a 150Gbps switch fabric yielding 71.4 Million packets per second performance
 - Provides up to 256K IPv4 route entries
 - Supports full 4096 VLANs
 - Supports 4096 Layer 3 interfaces
 - VLAN double tagging
 - Private VLANs, providing security and port isolation of multiple customers using the same VLAN
 - Supports 9KB Jumbo frame size² for data center and server aggregation applications
 - Gigabit SFP ports will support any combination of 10/100/1000BASE-T, 1000BASE-SX, 1000BASE-LX, 1000BASE-ZX or 1000BASE-ZX CWDM SFPs
 - Extensive wire-speed traffic classification for ACLs and QoS
 - Advanced routing protocols OSPF, BGP-4, RIP, RIPv2 and RIPv6, DVMRP, PIM-SM, PIM-DM
 - Wire-speed multicasting

Reliability and Future Proofing

- Two 30Gbps expansion bays supporting a choice of modules, including 1x 10GbE, 12 x 1GbE (SFP), and 12 x 1GbE (RJ45) for port flexibility and application versatility
- 1RU form factor, high port density and front-to-back cooling, ideal for high density rack and wiring closet installations
- Eliminates the need for redundant power supplies by providing power supplies that are hot-swappable and load-sharing
- Full environmental monitoring of PSUs, fans, temperature and internal voltages, with SNMP traps to alert network managers in case of any failure
- Cable fault detection – total cable length and distance to fault (fixed copper ports only)

Quality of Service

- Policy based QoS features
- Highly configurable traffic classification
- Buffered multiple packet remarking options at egress on all ports, and on each of 8 egress queues per port
- Twin-rate three-level (green, yellow, red) bandwidth metering, with burst sizes for improved TCP-IP bandwidth limiting performance and bandwidth resolution down to 1Kbps
- Low switching latency essential for Voice over IP (VoIP) and real-time streaming media applications

Resiliency

- STP, RSTP, MSTP (802.1s)
- Port trunking (802.3ad LACP)
- VRRP
- EPSR

Management

- Out of band 10/100/1000 Ethernet management port and asynchronous management port, both on the front panel for ease of access
- An SD memory card socket on the front panel, allowing software release files, configurations and other files to be stored for backup and distribution to other switches
- Port mirroring
- SSH, SSL, SFTP and SNMPv3 for secure management
- 802.1x support
- TACACS+, RADIUS

¹ NEBS (Network Equipment Building System) is a series of safety and conformance standards applied to telecommunications equipment in North America.

² When Jumbo frame support is enabled, the MRU is 9714 bytes for ports operating at 10/100Mbps, and 10,240 bytes (10KB) at 1Gbps (but maximum supported Layer 3 frame size is 9KB).

x900-24X SERIES | Enhanced Gigabit Layer 3+ Expandable Switch

modules offer variable port options, designed for aggregating mixed copper and fiber links in server farms and data center applications.

x900-24X Layer 3+ switches provide maximum Gigabit Ethernet port density in a compact 1RU chassis. Their high degree of flexibility future-proofs your investment against changes in network infrastructure, topologies, and physical link requirements.

Reliability

Dual hot-swappable AC or -48V DC load-sharing power supplies packaged in the 1RU rack mount chassis, provide the ultimate in space saving, reliability and resiliency. These features, combined with front-to-back cooling, make the x900-24X series perfect for the high-density rack environment where space is at a premium.

Policy-Based Quality of Service

Comprehensive, low latency Quality of Service (QoS) features operating at wire-speed provide flow-based traffic management with full classification, prioritization, traffic shaping and min/max bandwidth profiles. The x900-24X QoS features are ideal for service providers wanting to ensure maximum availability of premium voice, video and data services, and at the same time manage customer service level agreements. For enterprise customers, the x900-24X QoS features protect productivity by guaranteeing performance of business-critical applications (including VoIP services), and help to restore and maintain responsiveness of enterprise applications in the workplace.

Performance

The x900-24X is a powerful Layer 3+ switch with a 150Gbps switching fabric, achieving wire-speed switching and routing performance with a forwarding rate of 71.4Mpps. It can support up to two wire-speed 10GbE ports for high performance, high capacity network applications.

Performance

Switching Fabric 150Gbps
Forwarding Rate 71.4Mpps³
Up to 256K IPv4 routes
12K MAC addresses typical
Up to 4K layer 2 multicast groups
Up to 1K layer 3 IPv4 multicast groups
4K VLANs
512MB CPU SDRAM
128MB Packet buffer memory
32MB Flash Memory

Reliability

MTBF
x900-24X with 1 PSU and 1 fan module:
93,700 hours
x900-24X with 2 PSUs:
249,400 hours
(calculated using Telcordia SR-332 (Issue 1, May 2001) at 25°C ambient operating temperature)

Power Characteristics

AC
Voltage: 100 to 240V (+10% auto ranging)
Frequency: 47 to 63Hz

DC
Voltage: 36 to 72V

Power Consumption

x900-24X with 1 PSU and 1 fan module:
110 Watts / 375 BTU
x900-24X with 2 PSUs and 2 XEM-1XP modules:
191 Watts / 652 BTU

Environmental Specifications

Operating Temperature Range:
0°C to 40°C (32°F to 104°F)
Derated by 1°C per 305 Meters (1000ft)

Storage Temperature Range:
-25°C to 70°C (-13°F to 158°F)

Operating Relative Humidity Range:
5% to 80% non-condensing

Storage Relative Humidity Range:
5% to 95% non-condensing

Altitude:
3,050 Meters maximum (10,000ft)

Physical Dimensions

Height: 44.5mm (1.75")
Width: 440mm (16.7")
Depth: 440mm (16.7")⁴
Mounting: 19" rack mountable, 1RU form-factor

Weights

x900-24X with 1 PSU and 1 fan module:
7.3kg (16.1lbs), and 8.8kg (19.4lbs) packaged

x900-24X with 2 PSUs and 2 XEM-1XP modules:
9.3kg (20.5lbs), and 10.8kg (23.8lbs) packaged

AT-PWR01 (AC or DC): 1.0kg, and packaged
1.8kg (3.9lbs) (AC) or 1.5kg (3.3lbs) (DC)

AT-FAN01: 0.6kg (1.3lbs), and 1.4kg (3.1lbs)
packaged

Electrical Approvals and Compliances

EMC: EN55022 class A, FCC class A, VCCI class A
Immunity: EN55024, EN61000-3-levels 2
(Harmonics), and 3 (Flicker) – AC models only
NEBS: GR63, GR1089 level 3 – x900-24XT-N,
XEM-1XT, XEM-12S, and XEM-12T-N only

Safety

Standards: UL60950-1, CAN/CSA-C22.2 No.
60950-1-03, EN60950-1, EN60825-1, AS/NZS
60950

Certification: UL, cUL, TUV

Country of Origin

Singapore

³ With two 12 x 1GbE expansion modules (SFP or RJ45) installed.

⁴ This depth measurement excludes the PSU handles.

Standards and Protocols

Software Release 3.1.1

Authentication

IEEE 802.1x Port Based Network Access Control
RFC 1510 Network Authentication Service (Kerberos V5)
RFC 2082 RIP-2 MD5 Authentication

BGP-4

RFC 1771 Border Gateway Protocol 4
RFC 1966 BGP Route Reflection - An Alternative to Full Mesh IBGP
RFC 1997 BGP Communities Attribute
RFC 1998 Multi-home Routing
RFC 2385 Protection of BGP Sessions via the TCP MD5 Signature Option
RFC 2439 BGP Route Flap Damping
RFC 2842 Capabilities Advertisement with BGP-4
RFC 2858 Multiprotocol Extensions for BGP-4
RFC 2918 Route Refresh Capability for BGP-4
RFC 3065 Autonomous System Confederations for BGP
RFC 3392 Capabilities Advertisement with BGP-4

Discovery Protocols

CDP over WAN Forward Cisco Discovery Protocol packets over a WAN connection

Encryption

Diffie-Hellman key-exchange algorithm
FIPS 180 Secure Hash Signature Standard. This Standard specifies four secure hash algorithms - SHA-1, SHA-256, SHA-384, and SHA-512
FIPS 186 Digital Signature Standard. (RSA)
FIPS 46-3 Data Encryption Standard (DES & 3DES)
RFC 1321 The MD5 Message-Digest Algorithm
RFC 2104 HMAC - Keyed-Hashing for Message Authentication

Ethernet

GARP Generic Attribute Registration Protocol
GVRP Generic VLAN Registration Protocol
IEEE 802.2 Logical Link Control
IEEE 802.3 Ethernet CSMA/CD
IEEE 802.3ab 1000BASE-T
IEEE 802.3ad Link Aggregation Control Protocol (LACP)
IEEE 802.3ae 10 Gigabit Ethernet
IEEE 802.3u 100BASE-T
IEEE 802.3x Flow Control - Full Duplex Operation
IEEE 802.3z Gigabit Ethernet

General Routing

ECMP Equal Cost Multi Path routing
RFC 768 User Datagram Protocol (UDP)
RFC 791 Internet Protocol (IP)
RFC 792 Internet Control Message Protocol (ICMP)
RFC 793 Transmission Control Protocol (TCP)
RFC 826 Address Resolution Protocol (ARP)
RFC 894 Standard for the transmission of IP datagrams over Ethernet networks
RFC 903 Reverse ARP
RFC 919 Broadcasting Internet Datagrams
RFC 922 Broadcasting Internet datagrams in the presence of subnets
RFC 925 Multi-LAN ARP
RFC 950 Internet Standard Subnetting Procedure
RFC 1027 Proxy ARP
RFC 1035 DNS Client
RFC 1042 Standard for the transmission of IP datagrams over IEEE 802 networks
RFC 1071 Computing the Internet checksum
RFC 1122 Internet Host Requirements
RFC 1191 Path MTU discovery
RFC 1256 ICMP Router Discovery Messages
RFC 1288 Finger

RFC 1518 An Architecture for IP Address Allocation with CIDR
RFC 1541 DHCPv4 Client & Server
RFC 1542 BootP
RFC 1700 Assigned Numbers
RFC 1812 Requirements for IP Version 4 Routers
RFC 1918 IP Addressing
RFC 2131 DHCP
RFC 2132 DHCP Options and BOOTP Vendor Extensions.
RFC 2390 Inverse Address Resolution Protocol
RFC 2581 TCP Congestion Control
RFC 2822 Internet Message Format
RFC 3046 DHCP Relay Agent Information Option
RFC 3232 Assigned Numbers
RFC 3993 Subscriber-ID Suboption for DHCP Relay Agent Option

IPv6 Features

draft-arkko-manual-icmpv6-sas-01 Manual SA Configuration for IPv6 Link Local Messages
draft-ietf-ngtrans-hometun-01 IPv6 over IPv4 tunnels for home to Internet access
draft-ietf-ngtrans-introduction-to-ipv6-transition-06 Overview to the introduction of IPv6 in the internet
RFC 1886 DNS Extensions to support IP version 6
RFC 1981 Path MTU Discovery for IPv6
RFC 2365 Administratively Scoped IP Multicast
RFC 2375 IPv6 Multicast Address Assignments
RFC 2460 IPv6 specification
RFC 2461 Neighbour Discovery for IPv6
RFC 2462 IPv6 Stateless Address Autoconfiguration
RFC 2463 ICMPv6
RFC 2464 Transmission of IPv6 Packets over Ethernet Networks
RFC 2472 IPv6 over PPP
RFC 2526 Reserved IPv6 Subnet Anycast Addresses
RFC 2529 Transmission of IPv6 over IPv4 Domains without Explicit Tunnels
RFC 2711 IPv6 Router Alert Option
RFC 2851 Textual Conventions for Internet Network Addresses
RFC 3056 Connection of IPv6 Domains via IPv4 Clouds
RFC 3307 Allocation Guidelines for IPv6 Multicast Addresses
RFC 3315 DHCPv6
RFC 3484 Default Address Selection for IPv6
RFC 3513 IPv6 Addressing Architecture
RFC 3587 IPv6 Global Unicast Address Format
RFC 3596 DNS Extensions to support IPv6

Management

RFC 1155 Structure and Identification of Management Information for TCP/IP-based Internets
RFC 1157 A Simple Network Management Protocol (SNMP)
RFC 1212 Concise MIB definitions
RFC 1213 Management Information Base for Network Management of TCP/IP-based internets: MIB-II
RFC 1215 Convention for defining traps for use with the SNMP
RFC 1239 Standard MIB
RFC 1493 Bridge MIB
RFC 1515 Definitions of Managed Objects for IEEE 802.3 MAUs
RFC 1573 Evolution of the Interfaces Group of MIB-II
RFC 1623 Ethernet MIB
RFC 1657 Definitions of Managed Objects for BGP-4 using SMIv2
RFC 1757 RMON (groups 1,2,3 and 9)
RFC 2011 SNMPv2 MIB for IP using SMIv2
RFC 2012 SNMPv2 MIB for TCP using SMIv2
RFC 2096 IP Forwarding Table MIB
RFC 2233 Interfaces Group MIB using SMIv2
RFC 2572 SNMP-MPD-MIB
RFC 2576 Coexistence between V1, V2, and V3 of the Internet-standard Network Management Framework
RFC 2578 Structure of Management Information Version 2 (SMIv2)
RFC 2579 Textual Conventions for SMIv2
RFC 2580 Conformance Statements for SMIv2

RFC 2665 Definitions of Managed Objects for the Ethernet-like Interface Types
RFC 2674 Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering and Virtual LAN Extensions (VLAN)
RFC 2790 Host MIB
RFC 2819 RMON MIB
RFC 2856 Textual Conventions for Additional High Capacity Data Types
RFC 2863 The Interfaces Group MIB
RFC 3164 Syslog Protocol
RFC 3289 Management Information Base for the Differentiated Services Architecture
RFC 3410 Introduction and Applicability Statements for Internet-Standard Management Framework
RFC 3411 An Architecture for Describing SNMP Management Frameworks
RFC 3412 Message Processing and Dispatching for the SNMP
RFC 3413 SNMP Applications
RFC 3414 User-based Security Model (USM) for SNMPv3
RFC 3415 View-based Access Control Model (VACM) for SNMP
RFC 3416 Version 2 of the Protocol Operations for SNMP
RFC 3417 Transport Mappings for the SNMP
RFC 3418 MIB for SNMP
RFC 3635 Definitions of Managed Objects for the Ethernet-like Interface Types
RFC 3636 Definitions of Managed Objects for IEEE 802.3 Medium Attachments Units (MAUs)
RFC 4188 Definitions of Managed Objects for Bridges
RFC 4273 Definitions of Managed Objects for BGP-4

Multicast Support

RFC 1075 DVMRP
RFC 1112 Host extensions for IP multicasting
RFC 2236 Internet Group Management Protocol (IGMP), Version 2
RFC 2710 Multicast Listener Discovery (MLDv2) for IPv6
RFC 2715 Interoperability Rules for Multicast Routing Protocols
RFC 3810 Multicast Listener Discovery Version 2 (MLDv2) for IPv6
draft-ietf-idmr-dvmrp-v3-10 DVMRPv3
draft-ietf-magma-snoop-02 IGMP and MLD snooping switches
draft-ietf-pim-sm-v2-new-12.txt Protocol Independent Multicast - Sparse Mode (PIM-SM): Protocol Specification (Revised)
draft-vida-ml-dv2 Multicast Listener Discovery (MLDv2) for IPv6
IGMP Proxy draft-ietf-magma-igmp-proxy-05
IGMP Snooping Internet Group Management Protocol Snooping

OSPF

RFC 1245 OSPF protocol analysis
RFC 1246 Experience with the OSPF protocol
RFC 1587 The OSPF NSSA Option
RFC 2328 OSPFv2
RFC 3101 The OSPF Not-So-Stubby Area (NSSA) Option

PKI Support

RFC 1779 X.500 String Representation of Distinguished Names.
RFC 2459 X.509 Certificate and CRL profile
RFC 2510 PKI X.509 Certificate Management Protocols
RFC 2511 X.509 Certificate Request Message Format
RFC 2559 PKI X.509 LDAPv2
RFC 2585 PKI X.509 Operational Protocols
RFC 2587 PKI X.509 LDAPv2 Schema
RFC 3279 Algorithms and Identifiers for the Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile.
RFC 3280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile.
Draft-IETF-PKIX-CMP-Transport-Protocols-01 Transport

x900-24X SERIES | Enhanced Gigabit Layer 3+ Expandable Switch

Protocols for CMP
PKCS #10 Certification Request Syntax Standard

Quality of Service

RFC 1349 Type of Service in the IP Suite
RFC 2205 Reservation Protocol (RSVP)
RFC 2211 Specification of the Controlled-Load Network Element Service
RFC 2475 An Architecture for Differentiated Services
RFC 2597 Assured Forwarding PHB Group
RFC 2598 An Expedited Forwarding PHB (Per-Hop Behavior)
RFC 2697 A Single Rate Three Color Marker
RFC 2698 A Two Rate Three Color Marker
RFC 3246 An Expedited Forwarding PHB (Per-Hop Behavior)
Combined strict priority & WRR queuing
Combined strict priority queuing and weighted round robin queuing
Diffserv Differentiated Services
IEEE 802.1p Priority Tagging

Redundancy

EPSR Ethernet Protection Switched Rings
RFC 2338 VRRP
RFC 3768 VRRP
IEEE 802.1D STP - Spanning Tree Protocol (MAC Bridges)
IEEE 802.1s MSTP - Multiple overlapping spanning trees
IEEE 802.1t - 2001 802.1D maintenance
IEEE 802.1w - 2001 RSTP

Routing Protocols

RFC 1058 Routing Information Protocol (RIP)
RFC 2080 RIPng for IPv6
RFC 2081 RIPng Protocol Applicability Statement
RFC 2453 RIP Version 2

Security Features

RFC 1492 TACACS
RFC 1858 Fragmentation
RFC 2246 The TLS Protocol Version 1.0
RFC 2865 RADIUS
RFC 2866 RADIUS Accounting
RFC 2868 RADIUS Attributes for Tunnel Protocol Support
RFC 4251 The Secure Shell (SSH) Protocol Architecture
RFC 4252 The Secure Shell (SSH) Authentication Protocol
RFC 4253 The Secure Shell (SSH) Transport Layer Protocol
RFC 4254 The Secure Shell (SSH) Connection Protocol
SSHv1.5 Secure Shell server v1.5
SSLv2 http://wp.netscape.com/eng/security/ssl_2.html
SSLv3 <http://wp.netscape.com/eng/ssl3/draft302.txt>
draft-freier-ssl-version3-02.txt SSLv3
draft-grant-tacacs-02.txt TACACS+
draft-ylonen-ssh-protocol-00.txt SSH Remote Login Protocol

Services

RFC 854 Telnet Protocol Specification
RFC 855 Telnet Option Specifications
RFC 856 Telnet Binary Transmission
RFC 857 Telnet Echo Option
RFC 858 Telnet Suppress Go Ahead Option
RFC 932 Subnetwork addressing scheme
RFC 1091 Telnet terminal-type option
RFC 1305 Network Time Protocol (NTPv3)
RFC 1350 Trivial File Transfer Protocol (TFTP)
RFC 1413 IDP
RFC 1945 HTTP/1.0
RFC 1985 SMTP Service Extension
RFC 2049 MIME
RFC 2068 HTTP/1.1
RFC 2156 MIXER
RFC 2217 Telnet Com Port Control Option
RFC 2616 Hypertext Transfer Protocol - HTTP/1.1
RFC 2821 SMTP

VLAN Support

IEEE 802.1ad VLAN double tagging
IEEE 802.1Q Virtual LANS
IEEE 802.1v VLAN classification by protocol & port
IEEE 802.3ac VLAN tagging

Ordering Information

AT-x900-24XT

Enhanced Gigabit Layer 3+ Expandable Switch
2 x 30 Gigabit Expansion Bays + 24 x 10/100/1000BASE-T (RJ-45) ports

1 PSU and fan only module
Order number: 990-000996-xx

2 PSUs

Order number: 990-001145-zz

AT-x900-24XT-N

NEBS Compliant Enhanced Gigabit Layer 3+ Expandable Switch
2 x 30 Gigabit Expansion Bays + 24 x 10/100/1000BASE-T (RJ-45) ports

1 PSU and fan only module
Order number: 990-001297-85

2 PSUs

Order number: 990-001150-85

AT-x900-24XS

Enhanced Gigabit Layer 3+ Expandable Switch
2 x 30 Gigabit Expansion bays + 24 x 1000BASE-X SFP ports

1 PSU and fan only module
Order number: 990-001000-xx

2 PSUs

Order number: 990-001146-zz

Where xx = 00 for all power cords
20 for no power cord
80 for 48V DC power supply

Where zz = 10 for U.S. power cord
20 for no power cord
30 for U.K. power cord
40 for Asia/Pacific power cord
50 for European power cord
80 for 48V DC power supply

CWDM Wavelength	Where www=	Where xx=
1610NM	1610	32
1590NM	1590	33
1570NM	1570	34
1550NM	1550	35
1530NM	1530	36
1510NM	1510	37
1490NM	1490	38
1470NM	1470	39

x900-24X SERIES | Enhanced Gigabit Layer 3+ Expandable Switch

Expansion Modules

AT-XEM-1XP NEBS compliant
1 x 10GbE (XFP)
Order number: 990-000997-00

AT-XEM-12S NEBS compliant
12 x 1000BASE-X SFP ports
Order number: 990-000998-00

AT-XEM-12T
12 x 10/100/1000BASE-T (RJ-45) ports
Order number: 990-000999-00

AT-XEM-12T-N NEBS compliant
12 x 10/100/1000 BASE-T (RJ-45) ports
Order number: 990-001298-00

SD Card

AT-SM512A
512MB SD Card
Order number: 990-001208-00

SFP Modules

AT-SPTX
10/100/1000 BASE-T 100m Copper
Order number: 990-000262-00

AT-SPSX
1000BASE-SX
GbE multi-mode 850nm fiber
Order number: 990-00028-00

AT-SPLX10
1000BASE-LX
GbE single-mode 1310nm fiber up to 10km
Order number: 990-00029-00

AT-SPLX40
1000BASE-LX
GbE single-mode 1310nm fiber up to 40km
Order number: 990-00161-00

AT-SPLX40/1550
1000BASE-LX
GbE single-mode 1550nm fiber up to 40km
Order number: 990-00160-00

AT-SPZX80
1000BASE-LX
GbE single-mode 1550nm fiber up to 80km
Order number: 990-00031-00

AT-SPZX80/wwwww
1000BASE-LX
GbE single-mode CWDM fiber up to 80km
Order number: 990-000xx-00

10GbE XFP Modules For use with XEM-1XP

AT-XPSPR
10GBASE-SR
850nm Short-haul, 300m with MMF
Order number: 990-000387-00

AT-XPLR
10GBASE-LR
1310nm Medium-haul, 10km with SMF
Order number: 990-00086-00

AT-XP40
10GBASE-ER
1550nm Long-haul, 40km with SMF
Order number: 990-000584-00

Power supply and fan module

AT-PWR01 Hot-swappable load-sharing power supply
Order number: 990-001084-zz

Where zz = 10 for U.S. power cord
20 for no power cord
30 for U.K. power cord
40 for Asia/Pacific power cord
50 for European power cord
80 for 48v DC power supply

AT-FAN01 Fan only module
Order number: 990-001085-00

Feature licenses

AT-9900FL3UPGRD
x900-24 Full Layer 3 upgrade:

- RSVP
- DVMRP
- VRRP
- PIM SM
- PIM DM

Order number: 980-000001-00

AT-9900ADVL3UPGRD
x900-24 Advanced Layer 3 upgrade:

- IPv6
- BGP-4

Order number: 980-000009-00

AT-AR-VLANDTAG
VLAN double tagging upgrade
Order number: 980-10041-00

AT-AR-3DES (for SSL and SSH)
3DES upgrade
Order number: 980-10000-yyy

Where yyy = 00 for 1 temporary license
01 for 1 license
05 for 5 licenses
10 for 10 licenses
25 for 25 licenses
50 for 50 licenses
100 for 100 licenses
250 for 250 licenses

About Allied Telesis

Allied Telesis was founded in 1987 and now has offices around the globe, more than 2,800 employees and over \$500M of worldwide annual revenue. The attributes which have led Allied Telesis to achieve its leading position in the enterprise, operator and connectivity business segments can be summarised by four key elements: its business focus on networking technology for professional markets, where Allied Telesis has proved to be the only company capable of providing a total end-to-end solution at a high price/performance ratio; the ability to handle every aspect of its own products from design to marketing; the development of components and solutions which accommodate flexible, efficient and reliable network construction; and support from sound warranty terms and quality services. Allied Telesis connects the IP world efficiently thanks to affordable and highly reliable network solutions. For more information see: www.alliedtelesis.com

Service and Support

Allied Telesis provides value-added support services for its customers under its Net.CoverSM programs. For more information on Net.CoverSM support programs available in your area, contact your Allied Telesis sales representative or visit our website.

USA Headquarters | 19800 North Creek Parkway | Suite 200 | Bothell | WA 98011 | USA | T: +1 800 424 4284 | F: +1 425 481 3895

European Headquarters | Via Motta 24 | 6830 Chiasso | Switzerland | T: +41 91 69769.00 | F: +41 91 69769.11

Asia-Pacific Headquarters | 11 Tai Seng Link | Singapore | 534182 | T: +65 6383 3832 | F: +65 6383 3830

www.alliedtelesis.com

© 2006 Allied Telesis Inc. All rights reserved. Information in this document is subject to change without notice. All company names, logos, and product designs that are trademarks or registered trademarks are the property of their respective owners. 617-000168 Rev. C