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8500 Series

Managed Fast Ethernet Switches

AT-8516F/SC-xx
16 port 100FX (SC) Layer 2+ switch
with 2 expansion bays



Smarter, More Secure, and More Cost-effective

The 8500 series is a managed switch that brings enhanced security and Layer 2-4 intelligence to networks. Many network administrators demand easy to manage, cost-effective, intelligent switches at the LAN edge, and the 8500 series switch answers such demands, with the optimal balance of features, performance, and value. More intelligent than simple Layer 2 switches, the cost-effective 8500 series offers advanced attack detection and suppression capabilities for increased security and advanced QoS to support converged applications.

The sweet spot applications for such switches are:

- Traditional Enterprise LAN (wiring closet)
- Service-provisioned leased offices or MTUs
- Security-conscious Government and financial institutions
- Cost/security-conscious educational institutions

Layer 2-4 Intelligence

The 8500 series packs a lot of features in one rack unit. With advanced AlliedWare® technology, the 8500 series switches allow network administrators to configure the switch to examine packet formats and content from Layer 2, Layer 3, or Layer 4 (also known as the MAC, IP and TCP/UDP layers). After these layer parameters are defined and detected, the switch can trigger network decisions such as Access Control Lists (ACLs) for protection against DoS attacks, establishing rate limits for excessive bandwidth usage, and altering QoS to support converged applications.

Securing the LAN Edge

With the heightened concern for Denial of Services attacks, Allied Telesis is focusing on the security features within its products. Assisted by the Layer 2 through Layer 4 intelligence, network administrators can deploy the 8500 series as a complement to WAN firewalls and PC anti-virus software to fortify networks against attacks.The 8500 switches are programmed to detect six well- known DoS attacks, and coupled with security features such as IEEE 802.1x (port-based network access control) and Radius/ TACACS+, the 8500 series offers tiered security on each port.

Deploying tiered security within unsecured areas of corporate offices—such as meeting rooms and lounges—provides cost-effective protections at the network layer.

Service Features for Revenue Generation

Today's global economic climate pushes network administrators to focus on managing capital spending. One way to keep costs low is to allocate resources efficiently. Allied Telesis has designed the 8500 series to allow smart management of network resources with two key features:

- Ingress and egress rate-limiting to provision bandwidth QoS support with IEEE 802.1p and DSCP for priority traffic.
- The 8500 series also includes CoS to DSCP remarking, allowing Layer 2 QoS priorities to be preserved over the WAN (typically a Layer 3 feature).

The 8500 series can be pre-configured to control bandwidth-wasting traffic—such as music streaming to the desktops—by dynamically lowering the priority and limiting bandwidths

Key Features

Layer 2 - Layer 4 Intelligence

- Packet look-up at MAC, IP, TCP/UDP layers For QoS, ACL, mirroring, rate-limiting

Advanced Security

- DoS attack detection and reporting
- Radius/ TACACS+
- Port security
- Secure Telnet
- IEEE 802.1x
- Layer 2 - 4 ACL

Advanced Services

- Rate-limiting (ingress and egress)
- Four levels of services
- IEEE 802.1p based Class of Service
- DSCP for IP-based QoS

Layer 2 Redundancy

- IEEE 802.1s, Multiple STP (compatible with PVST+)
- IEEE 802.3ad, link aggregation
- IEEE 802.1D, Spanning-Tree
- IEEE 802.1w, Rapid STP

PoE capable

- IEEE 802.3af compliant

Stacking

- Management stacking of up to 24 switches with Enhanced StackingTM

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to a mere trickle without completely blocking it.The same features can benefit metro providers as well, allowing them to offer bandwidth provisioning and QoS priority as premium service to customers.

Management Stacking

Stacking provides CLI-based management of up to 24 switches with the same effort as for one switch. The Allied Telesis solution uses open standards interfaces as stacking links so that many switches can be stacked across different sites.

Specifications

Physical Characteristics

Dimensions (W x D x H)	43.8cm x 18.4cm x 4.4c (17.25"x 7.25" x 1.75")
Weight	3.5kg (7.6 lbs)

System Capacity

32MB RAM
4MB flash memory 200MHz PowerPC CPU 255 VLANs
8K MAC addresses 2MB file system

Performance

Latency:
<40 microseconds latency between 10Mbps ports
<11 microseconds latency between 100Mbps ports
<4 microseconds latency between 1000Mbps ports

Wirespeed switching on all Ethernet ports:
14,880pps for 10Mbps Ethernet
148,800pps for 100Mbps Fast Ethernet
1,488,000pps for 1000Mbps Gigabit Ethernet

Throughput: 5.4Mpps (64 byte packets)
Chipset switching capacity: 8.8Gbps

Auto MDI/MDI-X

MTBF (Observed)

AT-8516F/SC 380,000

Interface Standards

IEEE 802.3 10T and 10FL
IEEE 802.3u 100TX and 100FX
IEEE 802.3z 1000SX
IEEE 802.3ab1000T

General Standards

IEEE 802.1d Bridging
IEEE 802.3acVLAN tag frame extension
IEEE 802.3x BackPressure/ flow control

Redundancy Standards

IEEE 802.1D Spanning-Tree Protocol
IEEE 802.1w Rapid Spanning-Tree
IEEE 802.1s Multiple Spanning-Tree (compatible with PVST+)
IEEE 802.3adLACP link aggregation (with six trunk groups and up to eight port in a trunk)
Static port trunk

Quality of Services (QoS)

QoS in Layer 2 (IEEE 802.1p compliant Class of Service)
Map IEEE 802.1p priorities to CoS Queues to prioritize traffic at egress
Strict and Weighted Round Robin Scheduling
Rate limiting using classifiers, flow groups, traffic classes and policies
QoS for both ingress and egress traffic
Traffic reprioritization using IEEE 802.1p, ToS, DSCP fields

VLANs

IEEE 802.1Q VLAN tagging
Port-based VLANs
Multiple VLANs mode
Protected port VLAN
GARP VLAN Registration Protocol (GVRP)

Multicast Standards

RFC 1112 IGMP snooping (Ver. 1.0)
RFC 2236 IGMP snooping (Ver. 2.0)
RFC 3376 IGMP v3

Management and Monitoring

Web, CLI, Serial
RFC 1157 SNMPv1/v2c
SNMP v3
RFC 1213 MIB-II
RFC 1215 TRAP MIB
RFC 1493 Bridge MIB
RFC 2863 Interfaces group MIB
RFC 1643 Ethernet-like MIB
RFC 1757 RMON 4 groups: Stats, History, Alarms and Events
RFC 2674 IEEE 802.1Q MIB
AlliedTelesis Private MIB
RFC 1866 HTML
RFC 2068 HTTP
RFC 854 Telnet
RFC 783 TFTP

IP address allocation:
RFC 951 / RFC 1542 BOOTP
DHCP
Manual

RFC 2030 SNTP, Simple Network Time Protocol
Syslog client
Dual software images, dual configuration files
Event logs - 4,000 event capacity

Enhanced Stacking

Security

SSHv2 for Telnet mgmt
SSLv3 for web mgmt
RFC 1492 TACACS+
RFC 2138 RADIUS authentication
RFC 2139 RADIUS accounting
IEEE 802.1x Port-based network access control
Authenticator
Multiple supplicants
MAC address security/lockdown
Layer 1/2/3/4/ Access Control (ACLs)

Fault Protection

DoS attack protection
Smurf
SYN flood
Teardrop
Land
IP option
Ping of Death
Bad cable detection
Broadcast storm control

Power over Ethernet

IEEE 802.3af Power over Ethernet (mode A)

Power Characteristics

Voltage	100-240V AC
Current	4.0/2.0A
Frequency	50-60Hz
Power consumption	80W Max

Environmental Specifications

Operating temp.	0°C - 40°C (32°F - 104°F)
Storage temp .	-25°C - 70°C (-13°F - 158°F)
Operating humidity	5% - 90% non-condensing
Storage humidity	5% - 95% non-condensing

Electrical/Mechanical Approvals

Safety UL 60950-1, CSA C22.2 No. 60950-1-03, EN60950, EN60825 (TUV)
EMI FCC Class A, EN55022 Class A, VCCI Class A, C-TICK, EN61000-3-2, EN61000-3-3
Immunity EN55024

Country of Origin

China

Ordering Information

T-8516F/SC-xx
16 port 100FX (SC) Layer 2+ switch with 2 expansion bays

Where xx = 10 for US power cord
20 for no power cord
30 for UK power cord
40 for Australian power cord
50 for European power coed

Expansion Modules

AT-A45/SC
One module with single 100FX port (SC) for MMF, distance up to 2km in full-duplex

AT-A45/SC-SM15
One module with single 100FX port (SC) for SMF, distance up to 15km in full-duplex

AT-A46
One module with single 10/100/1000T port (RJ-45), distance up to 100m

AT-A47
One module with single unpopulated GBIC bay

AT-STACKM
Stacking module

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