



## RAPIER 'i' SERIES

### WAN Capable Layer 3 Fast Ethernet Switches

#### Rapier 16fi

16 port 100FX (SC or MT-RJ) Fast Ethernet Layer 3 switch with 2 uplink bays and WAN access bay

#### Rapier 24i

24 port 10/100TX Fast Ethernet Layer 3 switch with 2 uplink bays and WAN access bay

#### Rapier 48i

48 port 10/100TX Fast Ethernet Layer 3 switch with 2 uplink bays

#### Performance

Allied Telesyn's Rapier 'i' series of 10/100Mbps Layer 3 switches deliver an unprecedented level of integration, feature richness and switching performance at affordable prices. With wirespeed Layer 2 switching and wirespeed Layer 3 IP routing on all ports, these switches are designed for high-performance desktop connectivity, workgroup and server farm aggregation or backbone applications. In addition to the impressive switching performance, the Rapier 'i' series brings a large set of optional high-level Layer 3 and security features for more advanced networking applications.

#### Progressive Features

All Allied Telesyn's Layer 3 switches come with the feature rich operating system AlliedWare, which includes Layer 3 IP Static Routing, RIP, RIPv2, VRRP and OSPFv2 routing protocols. For advanced networking applications Allied Telesyn offers the Rapier 'i' series with three optional feature licenses: Full Layer 3 upgrade, Advanced Layer 3 upgrade, and Security upgrade. The Full Layer 3 upgrade enables a set of additional routing protocols such as IPX, AppleTalk, DVMRP, VRRP, PIM-DM/SM and RSVP. The Advanced Layer 3 upgrade provides a set of the specialized protocols consisting of IPv6, BGP4, and Load Balancer. The Security upgrade offers an ICSA-certified Stateful Inspection Firewall as well as both SMTP and HTTP application gateways.

#### WAN Support - Rapier Switch/Router

The Rapier 16fi and 24i models support an optional Network Services Module (NSM) with a variety of Port Interface Cards (PICs) to provide Wide Area Network connectivity for E1, T1, PRI ISDN, BRI ISDN, Asynchronous and Synchronous communications, Frame Relay and X.25. The AlliedWare operating system provides Layer 3 IP static routing, RIP, RIPv2, VRRP and OSPFv2 routing protocols, while optional specialized protocols are also available such as BGP4, IPX, RSVP, Appletalk, and the multicast routing protocols of DVMRP and PIM-DM/SM. These routing features give the Rapier 16fi and 24i the ability to not only act as a managed Layer 3 switch, but also as a fully specified router with four WAN interfaces.

#### Switching Features

The Rapier 'i' series of switches are some of the most powerful switches on the market. All Rapier 'i' Layer 3 switches include a suite of advanced switching features such as IEEE 802.1Q VLAN Tagging, IGMPv2, 802.1p Traffic Prioritization of packets at Layer 3 and Layer 4, and broadcast and multicast traffic control. The Quality of Service (QoS) features offered by the Rapier 'i' series are particularly useful for multi-tenant unit, multi business unit, Telco, or Network Service Provider applications.

#### Return on Investment

Today's economy demands that network investments provide a Return On Investment sooner rather than later. Cost effectiveness is achieved three ways. First, Rapier 'i' is the first Layer 3 switch with an integrated WAN router. Networks using a Layer 3 switch that does not support WAN routing need to incorporate additional router equipment at extra expense. Second, Rapier 'i' has three optional feature licenses so you only pay for the specialized features you need. Third, the Rapier 'i' series of switches offer the greatest variety of uplinks at the lowest cost.

#### Key Features

- Wirespeed Layer 2 - Layer 7 filtering
- Wirespeed Layer 3 IP routing
- Wirespeed Layer 2 switching
- Non-blocking at full line rate for all packet sizes (Rapier 16fi & Rapier 24i)
- Port trunking with link aggregation
- Stacking with open standards based interfaces
- Stateful Inspection Firewall
- BGP4 option
- IPv6 option
- OSI option
- Load Balancer option
- Support up to 255 VLANs
- Private VLANs
- Bandwidth limiting
- Broadcast and multicast traffic control
- IPsec
- L2TP
- IP RIP v1 and v2
- OSPF v2
- VRRP
- TACACS+
- 802.1x
- SNMPv3
- Redundant power supply option
- 2 uplink bays
- Lifetime warranty

# RAPIER 'i' SERIES | WAN Capable Layer 3 Fast Ethernet Switches

Choose from 100FX, copper Gigabit, or fiber Gigabit modules. Alternatively, choose unpopulated GBIC module and populate it with one of five GBIC types from Allied Telesyn.

The Rapier 'i' series offers an unmatched combination both switching and routing capabilities coupled with a flexible set of specialized features and uplink options.

## Fabulous Fiber

With 16 fiber 100FX ports the Rapier 16fi is uniquely suited to demanding environments where not only the full feature richness and switching performance of the Rapier 'i' switch is needed, but also where cable security and electro-magnetic immunity (EMI) are considerations. As well as performing under these demanding environments the 16fi offers the flexibility to provide access to the end station or to perform as an aggregation device. Due to the exceptional cable length afforded by 16fi's 100FX ports, networks that require an aggregation switch that provides routing between distant sites of up to 2000 meters can be comfortably met.

## IPv6 - The Future

Don't be shut out of the next generation of the Internet Protocol, IPv6. The Rapier series enables networks to take advantage of IPv6's important benefits:

- Addresses are 16Bytes long in contrast to IPv4's 4Byte addresses.
- Globally unique addresses with more levels of addressing hierarchy, to reduce the size of routing tables.
- Auto-configuration of addresses by hosts.
- Improved scalability of multicast routing, by adding a 'scope' field to multicast addresses.
- A new type of address, the 'anycast address,' which is used to send a packet to any one of a group of devices.

## Bandwidth Limiting

All Rapier 'i' series switches come with asymmetric bidirectional bandwidth limiting, per port or per QoS traffic class, at no additional cost. With bandwidth limiting, Network Service Providers can define throughput levels for each customer and sell their various service levels at tiered prices. These features are ideal to manage different applications like VoIP, Web browsing, Video and email to manage fee-based customers. The Rapier 'i' bandwidth limiting feature provides the smallest granulation available in Layer 3 products. Service Providers can define ingress limits down to 64Kbps segments and egress limits down to 1Mbps segments. The segment definitions can be

asymmetric and each port can be set to different values. An additional benefit is that loop back ports are not required.

## Stacking

Stacking provides Web and CLI based management of up to 9 switches with the same effort as for one switch. The Allied Telesyn solution uses open standards interfaces as stacking links so that many switches can be stacked across different sites, which is not possible using the proprietary stacking cable solutions. Also the use of open standards interfaces avoids the use of expensive specialized hardware with limited topologies.

## Redundant Power Supply

AC models of Rapier 'i' series switches have a Redundant Power Supply (RPS) connector on their rear panel, and use the AT-RPS8000 (redundant power supply). The AT-RPS8000 is a chassis that holds up to four removable AT-PVVR8000 RPS units. To provide backup power to Rapier 'i' series switches, each switch must be connected to an AT-PVVR8000 power unit, and the power unit must be installed in an AT-RPS8000 chassis.

## About Allied Telesyn

Allied Telesyn 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 Telesyn 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 Telesyn 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 Telesyn connects the IP world efficiently thanks to affordable and highly reliable network solutions. For more information see: [www.alliedtelesyn.com](http://www.alliedtelesyn.com)

## Service and Support

Allied Telesyn provides value-added support services for its customers under its Net.Cover<sup>SM</sup> programs. For more information on Net.Cover<sup>SM</sup> support programs available in your area, contact your Allied Telesyn sales representative or visit our website: [www.alliedtelesyn.com](http://www.alliedtelesyn.com)

## Performance

Rapier 16fi: 9.6Gbps switching fabric, 5.4Mpps forwarding rate  
Rapier 24i: 9.6Gbps switching fabric, 6.6Mpps forwarding rate  
Rapier 48i: 9.6 x 2 = 19.2Gbps switching fabric, 10.1Mpps forwarding rate

14,880pps for 10Mbps Ethernet  
148,800pps for 100Mbps Ethernet  
1,488,000pps for 1000Mbps Ethernet

Advanced switching ASIC  
MAC addresses 8K  
Buffer Memory 4MB  
VLANs 255  
Half/Full Duplex  
Auto-negotiation  
Auto-MDI/MDIX

## Reliability

Rapier 16fi 120,000 MTBF  
Rapier 24i 640,000 MTBF  
Rapier 48i 197,000 MTBF

## Interface Connections

10/100TX Shielded RJ-45  
100FX Multi-Mode fiber SC or MT  
1000SX Multi-Mode fiber SC  
1000LX Single-Mode fiber SC  
1000T Shielded RJ-45

## Power Characteristics

Voltage: 100-240vAC  
Frequency: 50-60Hz  
Power consumption max: 95W

## Environmental Specifications

Operating Temp: 0°C to 40°C (32°F to 104°F)  
Non-Operating Temp: -25°C to 70°C (-13°F to 158°F)  
Relative Humidity: 95% non-condensing  
Operating Altitude: 3,050 Metres (10,000ft)

## Acoustic Noise

46.0 dB

## Physical Characteristics

Rapier 16fi, Rapier 24i and Rapier 48i,  
Height: 66mm (2.6") 1.5 RU  
Width: 440mm (17.3")  
Depth: 356mm (14")

## Rapier 16fi

Unit weight: 6.4kg (14.1lbs)  
Packaged weight: 8.0kg (17.6lbs)  
Mounting: 19" rackmountable, hardware included

## Rapier 24i

Unit weight: 6.2kg (13.7lbs.)  
Packaged weight: 7.8kg (17.2lbs)  
Mounting: 19" rackmountable, hardware included

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## Rapier 48i

Unit weight: 6.8kg (15.0lbs)  
Packaged weight: 8.4kg (18.5lbs)  
Mounting: 19" rackmountable, hardware included

## Redundant Power Supplies AT-RPS8000-xx

4 slot redundant power supply chassis (includes one power module)  
Height without rubber feet: 66mm (2.6")  
Height with rubber feet: 71mm (2.8")  
Width: 440mm (17.3")  
Depth excluding projections: 357mm (14.1")  
Depth including projections: 400mm (15.8")  
Weight: 6.9kg (15.2lbs), packed weight 8.7kg (19.2lbs)

Where xx = 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

## AT-PWR8000

Redundant Power Supply module  
Height: 64mm (2.52")  
Width: 108mm (4.25")  
Depth: 300mm (11.81")  
Weight: 1.1kg (2.4lbs), packed weight 1.9kg (4.2lbs)

## Electrical/Mechanical Approvals

UL 1950  
CSA 22.2 No. 950  
EN 60950 (TUV)  
FCC Class A  
EN55022 Class A  
EN500082-1  
VCCI Class A

## Country of Origin

Singapore

## Standards and Protocols Software Release 2.7.5

### BGP-4

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

### Encryption

RFC 2104 HMAC  
RFC 2451 The ESP CBC-Mode Cipher Algorithms  
FIPS 180 SHA-1  
FIPS 186 RSA  
FIPS 46-3 DES  
FIPS 46-3 3DES

### Ethernet

RFC 894 Ethernet II Encapsulation  
IEEE 802.1D MAC Bridges  
IEEE 802.1Q Virtual LANs  
IEEE 802.2 Logical Link Control  
IEEE 802.3ab 1000BASE-T  
IEEE 802.3ac VLAN TAG  
IEEE 802.3ad (LACP) Link Aggregation  
IEEE 802.3u 100BASE-T  
IEEE 802.3x Full Duplex Operation  
IEEE 802.3z Gigabit Ethernet

### Frame relay

RFC 1490, 2427 Multiprotocol Interconnect over Frame Relay  
ANSI T1S1 Frame relay

### General Routing

RFC 768 UDP  
RFC 791 IP  
RFC 792 ICMP  
RFC 1256 ICMP Router Discovery Messages  
RFC 793 TCP  
RFC 2822 Internet Message Format  
RFC 826 ARP  
RFC 903 Reverse ARP  
RFC 950 Subnetting, ICMP  
RFC 1812 Router Requirements  
RFC 1027 Proxy ARP  
RFC 1055 SLIP  
RFC 1122 Internet Host Requirements  
RFC 1144 Van Jacobson's Compression  
RFC 1288 Finger  
RFC 2390 Inverse Address Resolution Protocol  
RFC 2131 DHCP  
RFC 3046 DHCP Relay Agent Information Option\*  
RFC 3993 Subscriber-ID Sub-option for DHCP Relay Agent Option\*  
RFC 1542 BootP  
RFC 2132 DHCP Options and BOOTP Vendor Extensions.  
RFC 1582 RIP on Demand Circuits  
RFC 1918 IP Addressing

RFC 1701 GRE  
RFC 1702 GRE over IPv4  
RFC 3232 Assigned Numbers  
RFC 1332 The PPP Internet Protocol Control Protocol (IPCP)  
RFC 1378 The PPP AppleTalk Control Protocol (ATCP)  
RFC 1570 PPP LCP Extensions  
RFC 1661 The Point-to-Point Protocol (PPP)  
RFC 1552 The PPP Internetworking Packet Exchange Control Protocol (IPXCP)  
RFC 1762 The PPP DECnet Phase IV Control Protocol (DNCP)  
RFC 1877 PPP Internet Protocol Control Protocol Extensions for Name Server Addresses  
RFC 1962 The PPP Compression Control Protocol (CCP)  
RFC 1968 The PPP Encryption Control Protocol (ECP)  
RFC 1974 PPP Stac LZS Compression Protocol  
RFC 1978 PPP Predictor Compression Protocol  
RFC 1990 The PPP Multilink Protocol (MP)  
RFC 2125 The PPP Bandwidth Allocation Protocol (BAP) / The PPP Bandwidth Allocation Control Protocol (BACP)  
RFC 2516 A Method for Transmitting PPP Over Ethernet (PPPoE)  
RFC 2878 PPP Bridging Control Protocol (BCP)  
RFC 2661 L2TP  
"IPX Router Specification", v1.2, Novell, Inc., Part Number 107-000029-001  
AppleTalk

### General Routing and Firewall

RFC 3022 Traditional NAT  
draft-ietf-ipsec-nat-t-ike-08.txt Negotiation of NAT-Traversal in the IKE  
draft-ietf-ipsec-udp-encaps-08.txt UDP Encapsulation of IPsec Packets

### IP Multicasting

RFC 1075 DVMRP  
RFC 1112 Host Extensions  
RFC 1812 Router Requirements  
RFC 2236 IGMPv2  
RFC 2362 PIM-SM  
RFC 2715 Interoperability Rules for Multicast Routing Protocols  
RFC 3973 PIM-DM  
draft-ietf-idmr-dvmrp-v3-9 DVMRP  
draft-ietf-magma-snoop-02 IGMP and MLD snooping switches

### IPsec

RFC 1829 IPsec algorithm  
RFC 3173 IPComp - IPsec compression  
RFC 2395 IPsec Compression - LZS  
RFC 1828 IP Authentication using Keyed MD5  
RFC 2401 Security Architecture for IP  
RFC 2402 AH - IP Authentication Header  
RFC 2403 IPsec Authentication - MD5  
RFC 2404 IPsec Authentication - SHA-1  
RFC 2405 IPsec Encryption - DES  
RFC 2406 ESP - IPsec encryption  
RFC 2407 IPsec DOI  
RFC 2408 ISAKMP  
RFC 2409 IKE  
RFC 2410 IPsec encryption - NULL  
RFC 2411 IP Security Document Roadmap  
RFC 2412 OAKLEY

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## IPv6

RFC 3596 DNS Extensions to support IPv6  
RFC 1981 Path MTU Discovery for IPv6  
RFC 2080 RIPng for IPv6  
RFC 3513 IPv6 Addressing Architecture  
RFC 2375 IPv6 Multicast Address Assignments  
RFC 2460 IPv6  
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 3484 Default Address Selection for IPv6  
RFC 2710 Multicast Listener Discovery (MLD) for IPv6  
RFC 3810 Multicast Listener Discovery Version 2 (MLDv2) for IPv6  
RFC 2711 IPv6 Router Alert Option  
RFC 2529 Transmission of IPv6 over IPv4 Domains without Explicit Tunnels  
RFC 2893 Transition Mechanisms for IPv6 Hosts and Routers  
RFC 3056 Connection of IPv6 Domains via IPv4 Clouds  
RFC 3315 DHCPv6  
RFC 3587 IPv6 Global Unicast Address Format  
RFC 2365 Administratively Scoped IP Multicast  
RFC 3307 Allocation Guidelines for IPv6 Multicast Addresses  
RFC 2465 Allocation Guidelines for IPv6 Multicast Addresses Management Information Base for IP Version 6: Textual Conventions and General Group  
RFC 2466 Management Information Base for IP Version 6: ICMPv6 Group  
RFC 2851 Textual Conventions for Internet Network Addresses

## Management

RFC 1155 MIB  
RFC 1157 SNMP  
RFC 1212 Concise MIB definitions  
RFC 1213 MIB-II  
RFC 1643 Ethernet MIB  
RFC 1493 Bridge MIB  
RFC 2790 Host MIB  
RFC 1515 Definitions of Managed Objects for IEEE 802.3 MAUs  
RFC 1573 Evolution of the Interfaces Group of MIB-II  
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 3768 VRRP  
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 2856 Textual Conventions for Additional High Capacity Data Types  
RFC 3164 Syslog Protocol  
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 the SNMP  
RFC 3416 Version 2 of the Protocol Operations for SNMP  
RFC 3417 Transport Mappings for the SNMP  
RFC 3418 MIB for SNMP  
draft-ietf-bridge-8021x-00.txt Port Access Control MIB  
RFC 3289 Management Information Base for the Differentiated Services Architecture

## OSPF

RFC 1245 OSPF protocol analysis  
RFC 1246 Experience with the OSPF protocol  
RFC 2328 OSPFv2  
RFC 1586 OSPF over Frame Relay  
RFC 1793 Extending OSPF to Support Demand Circuits  
RFC 1587 The OSPF NSSA Option

## QoS

RFC 1349 Type of Service in the IP Suite  
RFC 2205 Reservation Protocol  
RFC 2211 Controlled-Load  
RFC 2475 An Architecture for Differentiated Services  
IEEE 802.1p Priority Tagging  
RFC 2697 A Single Rate Three Color Marker  
RFC 2698 A Two Rate Three Color Marker  
RFC 2597 Assured Forwarding PHB Group  
RFC 3246 An Expedited Forwarding PHB (Per-Hop Behavior)

## RIP

RFC 1058 RIPv1  
RFC 1723 RIPv2

## Security

RFC 959 FTP  
RFC 1413 IDP  
RFC 1492 TACACS  
RFC 1779 X.500 String Representation of Distinguished Names.  
RFC 1858 Fragmentation  
RFC 2865 RADIUS  
RFC 2866 RADIUS Accounting  
RFC 2868 RADIUS Attributes for Tunnel Protocol Support  
RFC 3580 IEEE 802.1X Remote Authentication Dial In User Service (RADIUS) Usage Guidelines  
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  
draft-grant-tacacs-02.txt TACACS+  
Draft-IETF-PKIX-CMP-Transport-Protocols-01 Transport Protocols for CMP

draft-ylonen-ssh-protocol-00.txt SSH Remote Login Protocol  
IEEE 802.1x Port Based Network Access Control  
PKCS #10 Certificate Request Syntax Standard

## Services

RFC 2821 SMTP  
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 2217 Telnet Com Port Control Option  
RFC 932 Subnetwork addressing scheme  
RFC 1305 NTPv3  
RFC 1091 Telnet terminal-type option  
RFC 1179 Line printer daemon protocol  
RFC 1350 TFTP  
RFC 1510 Network Authentication  
RFC 2049 MIME  
RFC 1985 SMTP Service Extension  
RFC 2156 MIXER  
RFC 1945 HTTP/1.0

## SSL

RFC 2246 The TLS Protocol Version 1.0  
draft-freier-ssl-version3-02.txt SSLv3

## STP / RSTP

IEEE 802.1Q - 2003 MSTP (802.1s)  
IEEE 802.1t - 2001 802.1D maintenance  
IEEE 802.1w - 2001 RSTP

## VoIP

RFC 2543 SIP  
G.711 A/μ law Pulse code modulation (PCM) of voice frequencies  
G.723.1 Dual rate speech coder for multimedia communications transmitting at 5.3 and 6.3 kbit/s  
G.729 A/B (Optional) Coding of speech at 8 kbit/s using conjugate-structure algebraic-code-excited linear-prediction (CS-ACELP)  
H.323 v2 Packet-based multimedia communications systems

## X.25

RFC 1356 Multiprotocol Interconnect on X.25 and ISDN in the Packet Mode  
ITU-T Recommendations X.25 (1988), X.121 (1988), X.25

*\*Please check for availability*

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## Ordering Information

### AT-RP16fi/SC-xx

100FX (SC) 16 port managed Layer 3 switch, with 2 expansion bays and a WAN access bay  
Order information: 990-11936-xx

### AT-RP16fiMT-xx

100FX (MT) 16 port managed Layer 3 switch, with 2 expansion bays and a WAN access bay  
Order information: 990-11937-xx

### AT-RP24i-xx

10/100TX 24 port managed Layer 3 switch, with RJ-45 connectors, 2 expansion bays and a WAN access bay  
Order information: 990-11934-xx

### AT-RP48i-xx

10/100TX 48 port managed Layer 3 switch, with RJ-45 connectors and 2 expansion bays  
Order information: 990-11935-xx

Where xx =     10 for U.S. power cord  
                  20 for no power cord  
                  30 for U.K. power cord  
                  40 for Australia power cord  
                  50 for Europe power cord  
                  80 for -48v DC power supply

## WAN Access Options

### Port Interface Card (PIC) Options

#### AT-AR020

Single software configurable E1/T1 interface that supports channelized / unchannelized Primary Rate ISDN / Frame Relay\*  
Order Number: 990-04235-00

#### AT-AR021U

Single basic rate ISDN U interface  
Order Number: 990-04241-00

#### AT-AR021S (v2)

Single basic rate ISDN S/T interface  
Order Number: 990-04251-00

#### AT-AR022

Single 10Mbps Ethernet  
Order Number: 990-04232-00

#### AT-AR023

Single synchronous port up to 2Mbps to an external CSU/DSU (AT-V.35-DTE-00 or AT-V.21-DTE-00 cable required)  
Order number: 990-04230-00

#### AT-AR024

Four asynchronous RS-232 interfaces to 115Kbps  
Order number: 990-04233-00

#### AT-AR026

Four 10/100 Fast Ethernet ports  
Order number: 990-11620-00

#### AT-AR027

Two VoIP FXS ports  
Order number: 990-01123-00

## Network Service Modules

### AT-AR040 Network Service Module

4 PIC slots  
Order number: 990-04282-00

### AT-AR041 Network Service Module

8 BRI ISDN (S/T) ports  
Order number: 990-11785-00

### AT-AR042 Network Service Module

4 BRI ISDN (S/T) ports  
Order number: 990-12273-00

\* Only two AT-AR020 allowed in AT-AR040

## Encryption/Compression Module

(for use with Rapier 16fi and Rapier 24i only)

### AT-AR061

EPAC encryption/compression card  
Order number: 990-11933-00

## Uplink Modules

### AT-A35SX/SC

1 x 1000SX (SC) Gigabit fiber  
Order information: 990-11343-00

### AT-A35LX/SC

1 x 1000LX (SC) Gigabit fiber  
Order information: 990-11344-00

### AT-A39/T

1 x 10/100/1000T (RJ-45) Gigabit copper  
Order information: 990-11345-00

### AT-A40/SC

1 x 100FX (SC) multimode fiber  
Order information: 990-11920-00

### AT-A40/MT

1 x 100FX (MT) multimode fiber  
Order information: 990-11921-00

### AT-A41/SC

1 x 100FX (SC) singlemode fiber  
Order information: 990-11922-00

### AT-A41/MT

1 x 100FX (MT) singlemode fiber  
Order information: 990-11923-00

### AT-A42

1 x Unpopulated GBIC module  
Order information: 990-11006-00

## Gigabit Interface Converter

modules (GBICs) (for use with AT-A42)

### AT-G8T

1000T GBIC Copper  
Order number: 990-97208-00

### AT-G8SX-01

500m SX GBIC, based on 50 micron MMF  
220m SX GBIC, based on 62.5 micron MMF  
Order number: 990-02023-00

### AT-G8LX10

10km LX GBIC, based on 9 micron SMF  
Order number: 990-11138-00

### AT-G8LX25

25km LX GBIC, based on 9 micron SMF  
Order number: 990-11643-00

### AT-G8LX40

40km LX GBIC, based on 9 micron SMF  
Order number: 990-11644-00

### AT-G8LX70

70km LX GBIC, based on 9 micron SMF  
Order number: 990-11645-00

\* The GBICs listed are subject to change at any time without notice.

# RAPIER 'i' SERIES | WAN Capable Layer 3 Fast Ethernet Switches

## Redundant Power Supplies

AT-RPS8000-xx

4 slot redundant power supply chassis (includes one power module)

Order number: 990-11126-xx

Where xx = 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

AT-PWR8000

Redundant Power Supply module

Order number: 990-11152-00

## Software Upgrade Options

AT-AR-RPFL3UPGRD

Rapier Full Layer 3 Upgrade

- IPX routing
- Appletalk
- RSVP
- PIM DM
- PIM SM
- DVMRP
- VRRP

Order number: 980-10002-y

AT-RPADVL3UPGRD

Rapier Series Advanced Layer 3 Upgrade

- IPv6
- BGP4
- Load balancing<sup>1</sup>

Order number: 980-10024-y

AT-RPsecPK-00

Rapier Security Pack Upgrade

- Firewall SMTP
- Proxy
- HTTP Proxy

Order number: 980-10030-y

AT-AR-3DES

3DES Encryption option (requires AR061)

- 3DES

Order number: 980-10000-y

Where y = 00 for 1 slot  
01 for 1 licence  
05 for 5 licences  
10 for 10 licences  
25 for 25 licences  
50 for 50 licences  
100 for 100 licences  
250 for 250 licences

<sup>1</sup> Load balancer requires release 2.5.1 or later and AT-RPsecPK.

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