Allied Telesis®

PAC24
AT-TN123-B 24 Port POTS and ADSL2+ Combo Service Module

Eliminate Externals Splitters with a Combined POTS and ADSL2+ Service Module

Allied Telesis has combined industry leading ADSL2+ technology, VoIP based POTS interfaces and optimized Splitters to deliver the PAC24 combo service module. The PAC24 eliminates external wiring required to connect POTS and ADSL2+ circuits on traditional DLC or legacy DSLAM platforms. Utilizing the same optimized wiring and board layout techniques used in the ADSL24 LIFs, the PAC24 is a cost effective means to deliver Triple Play services that rely on baseband POTS in the last mile.

Each of the 24 subscriber ports simultaneously supports basedband POTS and any of the standard ADSL modes - ADSL2+, G.DMT, S=1/2, or T1.413 - on a per port basis. A powerful DSP implements all ADSL algorithms and allows future and emerging ADSL2+ features to be added through simple software upgrades. Though the combined services appear as a single port on the physical connection to the PAC24 line card, each service is individually managed. This ensures services are enabled on an on-demand basis though remote management - including through the comprehensive AlliedView NMS.

The PAC24 not only eliminates the cost and wiring associated with external splitters, it also optimizes Rate vs Reach performance. The integrated splitters eliminate a significant source of ADSL2+ interference thereby ensuring CSA designs reach as far into the OSP as possible.

Transitioning to a Ubiquitous Broadband Network

Combining the PAC24 with other iMAP linecards, Service Providers of all types can migrate to a ubiquitous broadband network in a pay-as-you-go fashion. As broadband take

rates continue to increase, the PAC24 is well poised to enable either a gradual or immediate transition to the IP future.

The PAC24 delivers a rich suite of traditional POTS services including:
- Loop start
- DTMF and dial pulse detection
- CLASS features
- Unbalanced ringing @ 5REN per line
- 18kft loops
- Integrated GR-909 metallic testing

The PAC24 also includes support for SIP and MGCP based Softswitch interoperability. The same PAC24 can be used to communicate to alegacy circuit switched Class 5 switch or alternatively, to a next generation IP based Softswitch. With the PAC24 line card, Service Providers can deploy an IP broadband Access system that can protect and take advantage ofexisting or future Class 5 investments.

Part of a IP Broadband Access Family

Whether it is broadband ADSL2+, FTTH or POTS, the iMAP family is the ideal platform for last mile service delivery. The PAC24 line card can be used with any of the iMAP family of carrier grade, IP Multiservice Access platforms:
- iMAP 9700 (9RU, 17 service slots)
- iMAP 9400 (3RU, 7 service slots)
- MiniMAP 9100 (1RU, 3 service slots)

Provisioning, management, and diagnostics of subscriber ports can be accomplished from either the iMAP command line interface or the NMS.

The AT-TN123 has been designed to survive the most rugged environmental conditions. It can be confidently deployed in either a central office or in outdoor enclosures withstanding extremes of heat, cold, and light exposure.

Key Features

- 24 POTS and ADSL2+ ports with Integrated Splitters
- Integrated ring generator with 15 REN capability
- Selectable G.711 or G.726 VoIP CODEC
- SIP and MGCP call control protocols
- CLASS feature support
- Support for V.90 analog modem rates
- Automatic or manual selection of ADSL2+, G.DMT, S=1/2, or T1.413 modes
- Flexible control of traffic priorities for voice, video, data applications
- Video-optimized
- Currently available in North America only

QoS
- Four Queues
- Priority scheduling
- VC to VLAN Mapping

Security
- MAC limiting (up to 64)
- MAC flooding – VLAN-based

Services Supported
- High Speed Internet
- VoIP
- IPTV
- Gaming
- POTS

Allied Telesis' iMAP family of integrated Multiservice Access Platforms

Interface Specifications

Number of ports: 24
Connector: RJ-21 (Female)

POTS Specifications

Talk Battery:	48 to 52Volts tip-ring on-hook
Ring Generator:	86-90Vrms, 20Hz into 15REN
2wire impedance:	900 ohms + 2.16uF complex
Frequency Response:	200 − 34000Hz flat +/- 0.2db
Longitudinal balance:	>45dB
Loop current:	26 − 28mA current limited
Loop range:	0 − 2000 ohms resistance
Loop signaling:	Loopstart supervision, superimposed ringing
Dialing support:	DTMF, Dial Pulse
CODEC:	G.711, G.726-32k
Packetization:	10, 20, or 30ms
Echo:	G.168 Echo Cancellation
Jitter buffer:	Up to 150ms average delay with 300ms buffer depth

ADSL Standards and Specifications

ITU-T G.992.1 (ADSL, G.DMT, T1.413)
ITU-T G.992.5 (ADSL2+)
S = 1/2
Annex A (ONLY)
IEEE 802.1Q VLAN Bridging
IEEE 802.1p Prioritization
IETF RFC 1112 IP Multicasting/IGMP Snooping v1
IETF RFC 2236 IP Multicasting/IGMP Snooping v2
DHCP Relay Agent option 82 (RFC 3046)

Power Requirements

Maximum power: 100W

Environmental Specifications

Operating Temp: -40C to 65C
Storage Temp: -40C to 75C
Relative Humidity: 5% to 95%, non-condensing

Regulatory Approvals

FCC Part 15 Class A/ANSI C63.4
EN 300 386 V1.3.1:2001-09/EN 55022:1998, Class A
VCCI Class A; ITE/ CISPR 22:1997 Class A
EN 300 386 V1.3.1:2001-09/EN 55022:1998, Class A
EN 300 386 V1.3.1:2001-09/EN 61000-4-3:1998
EN 300 386 V1.3.1:2001-09/EN 6100-4-6:1996
EN 300 386 V1.3.1:2001-09/EN 61000-4-4:1995
EN 300 386 V1.3.1:2001-09/EN 61000-4-5:1995
EN 300 386 V1.3.1:2001-09/EN 61000-4-2:1999
UL/cUL 60950: IEC60950
NEBS Level 3, GR-1089 Issue 3, GR63 Issue 2
USDA RUS
GR-57-CORE

Ordering Information

PAC24

Model	Description	Part #
PAC24	24 ports, POTS and ADSL2+ Combo Service Module	AT-TN-123-B

iMAP 9x00 Chassis

Model	Description	Part #
iMAP 9700	17-slot chassis with DC power without faceplates	AT-TN-250G
iMAP 9400	7-slot chassis with DC power without faceplates	AT-TN-251G
MiniMAP 9101	3-slot mini chassis with DC power	AT-TN-9101-A-80
MiniMAP 9102	3-slot mini chassis with AC power	AT-TN-9102-A-XX*

iMAP Common Control

Model	Description	Part #
CFC24	24GbE switch controller card	AT-TN-401-C
GE3	3x GbE WAN interface card	AT-TN-301-C
CFC12	12GbE switch controller card	AT-TN-408-A

Related iMAP Line Cards and Accessories

Model	Description	Part #
POTS24	24-port, POTS Service Module	AT-TN-113-A
CES8	8-port, T1/E1 Circuit Emulation Service Module	AT-TN-119-A

*Where XX	= 10 for U.S. power cord	= 40 for Australia power cord
	= 30 for U.K. power cord	= 50 for Europe power cord

**Where YY	= 005 for 5 ft	= 030 for 30 ft	= 070 for 70 ft
	= 010 for 10 ft	= 040 for 40 ft	= 080 for 80 ft
	= 015 for 15 ft	= 050 for 50 ft	= 090 for 90 ft
	= 020 for 20 ft	= 060 for 60 ft	

Connecting The IP World

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