



## A Complete Offering for High Bandwidth Asymmetrical Services — Residential Data, Voice, and Multiple Video Channels

- Application Flexibility with Asymmetric Data Transport of 24 Mbps Downstream and 2.4 Mbps Upstream per Port
- 2-port Bonding as well as Loop Condition Diagnostic Feature Support
- Compliant with ITU, ANSI and ETSI Standards
- POTS/ISDN in Overlay Mode
- Deployment from CO, Cabinet or Basement, Multi-tenant Units/Multi-Dwelling Units



Hardened ADSL2+ Mini IP DSLAM

**IES-1248  
SERIES**

### Benefits

#### Better Utilization of Bandwidth

ZyXEL IES-1248 Series (DC Power Input) is an IP-based DSLAM that terminates all the ATM circuits and converts traffic directly to deliver the most popular broadband IP services. It also provides a distinct advantage over typical ATM-based DSL access system due to the fact that IP is the natural approach for data transmission. It offers better bandwidth utilization, ease of use, as well as the low-cost advantage. With the highly compact and temperature-hardened design, simple installation and easy adaptation to local POTS/ISDN splitter requirements, IES-1248 Series can be deployed in indoor and outdoor enclosures.

#### A Robust, Capable ADSL2+ Solution

With this standalone ADSL2+ IP DSLAM, service providers can offer residential and business users access to high-bandwidth services on demand; such as streaming video, online gaming, multimedia applications and multiple video channels on a single network connection. IES-1248 Series also offers medium/small businesses and home offices IP connectivity, VPNs, VLANs, high-quality video conferencing, long-reach Ethernet and legacy service interconnection, as well as asymmetric connectivity as fast as 24 Mbps. IES-1248 Series DSL solution for POTS/ISDN is a sophisticated ADSL2+ device wielding full compliance to existing standards, the latest DSL technology, compactness, low power consumption, integration with existing platforms and network manageability. The combination of a superior line code, modern signal processing techniques and state-of-the-art ASIC design add up to a compact, energy-saving ADSL2+ modem with excellent performance, transparent backward ADSL/ADSL2 compatibility, robust interference resistance and flexible configurability.

### Service Applications

- A complete service offering bundling data, voice and video services
- Residential: broadband Internet access, streaming audio and video, gaming, high quality video distribution, VoD, and telecommuting
- Medium and small businesses: IP connectivity, VPNs, VLANs, high quality video conferencing, long reach Ethernet or legacy service interconnection, asymmetric to 24 Mbps
- Low cost reliable transport for backhauling applications, such as mobile base station connectivity over ADSL
- VoDSL services, legacy services and WAN interconnection, bridging or routing, VPNs, provided through appropriate CPE
- Cost-effective broadband access for higher margin services such as VoD, gaming, and multimedia applications

# Specifications

## ADSL2/ADSL2+ Interface

- Support G.992.1 Annex A
- Support G.992.3 Annex A, Annex L, Annex M
- Support G.992.5 Annex A, Annex M
- Support G.994.1 G.hs
- Support G.992.3 and G.992.5 ATM Transmission Convergence (ATM-TC) function
- Support G.992.3 and G.992.5 Spectral Mask
- Support EOC and Overhead Channel Access defined in ITU-T Rec. G.992.3 and ITU-T Rec. G.997.1
- Support the latency path function specified in ITU-T Rec. G.992.3 and G.992.5
- Support loop diagnostic function specified in ITU-T Rec. G.992.3 and G.992.5
- Support the power management capability specified in ITU-T Rec. G.992.3 and G.992.5
- Support the capability of the Seamless Rate Adaptation (SRA) on-line configuration specified in ITU-T Rec. G.992.3 and G.992.5
- SELT and DELT

## Network Interface

- IEEE 802.3u 100BASE-Tx
- IEEE 802.3ab 1000BASE-T
- IEEE 802.3z 1000BASE-Lx/1000BASE-Sx
- SFP mini GBIC

## ATM Functionality

- Support Point-to-Point Virtual Circuit Connection (VCC) in the Network
- Provide the Peak Cell Rate (PCR) configurable parameter for UBR services specified in ATM Forum Traffic Management 4.0
- Provide the Peak Cell Rate configurable parameter for CBR services specified in ATM Forum Traffic Management 4.0
- Provide the Peak Cell Rate (PCR) and Sustainable Cell Rate (SCR) configurable parameters for rt-VBR and nrt-VBR services specified in ATM Forum Traffic Management 4.0
- The over-subscription of bandwidth is permitted, i.e., total DSL bandwidth can be larger than bandwidth of DSLAM network interface for UBR service
- Support the downstream traffic shaping function for each ATM PVC connection
- Support the Fault Management (FM) functions of the ATM layer F5 OAM cells for End-to-End Loopback defined in ITU-T Rec. I.610
- 8 PVC per port
- Support upstream rate limiting per PVC
- Support G.998.1 ADSL 2-port bonding

## IP Functionality

- Support ICMP (Internet Control Message Protocol) function, and respond the ICMP request message sent from NMS or other system
- IP bridging

## Subscriber Management

- Support the Ethernet MAC filtering function
- Support 14K MAC addresses
- Support the DHCP relay agent option 82 function
- Support 802.1x
- Support port isolation function
- Support RFC2684 bridged/routed mode payload encapsulation method
- Support the IPsec/L2TP/PPTP VPN pass-through function
- Support RFC2516 PPPoE packet forwarding function
- Support configurable MTU (1526 ~ 1600 bytes)
- Support TR-101 compliant PPPoE intermediate agent
- Support DHCP option 82 feature per port or per VLAN
- Support DHCP snooping and static IP address feature
- Support TR-101 compliant DHCP option 82 packet format

## VLAN & VLAN Bridge Functions

- Provide 1024 configurable VLANs
- The VLAN tagging complies with IEEE 802.1Q
- Support VLAN bridge function of mapping of multiple PVCs to one VLAN ID
- Support the IEEE 802.1Q VLAN tagging
- Support GVRP function
- Support per-VLAN isolation
- Support OUI filter function

## Reliability

- Support 802.1w RSTP

## QoS

- Support configurable IEEE 802.1p priority queue function and support 4 levels
- Support configurable mapping function between ATM PVC and 802.1p priority queue

## Multicast Capability for IP Network Interface

- Support RFC2684 bridged mode multicast service
- Support Internet Group Management Protocol (IGMP) version 2 specified in RFC2236
- Support IGMP snooping/proxy function
- Support 512 multicast groups
- Support 50 members for each multicast group
- Support IGMP v3 packet recognition
- Support multicast group filter function
- Local management through a craft terminal
- Support the In-band IP interface for managing the Network
- Support SNMP (Simple Network Management Protocol) v1.0 & v2c (RFC1157)

- Support SNMP secure client function
- The management activities can be performed by SNMP operations
- Support SNMP MIB(s)
- Support standard SNMP traps so that these traps can be reported to other NMSs
- Centralized Management Software — EMS supporting

## Hardware Specifications

### Hardware Configuration

- Two TELCO-50 connectors for 48-port ADSL/ADSL2/ADSL2+
- Two TELCO-50 connectors for 48-port splitter card
- One mini RJ11 console port for local management
- Two 100Base-Tx/1000Base-T or two mini GBIC for uplink/subtending
- One DB9 for 3 in and 1 out alarm contact
- Hot-swappable fan module
- DC Input connector

### Power Requirements

- Voltage: -48 V DC (-36 ~ -72 V DC)
- Power: max. 90 Watts

### Physical Specifications

- 19" and 23" Rack-mountable
- Force cooling by FAN
- Temperature hardening
- Built-in splitter
- Dimensions: 439.8 (W) x 251 (D) x 66 (H) mm
- Weight: 7.2 Kg

### Environmental Specifications

- Operating Temperature: -40°C ~ 65°C
- Storage Temperature: -40°C ~ 85°C
- Operating Humidity: 10% ~ 95% (non-condensing)
- Storage Humidity: 5% ~ 95% (non-condensing)

### Certification

- EMC/ESD: FCC part 15 Class A; EN 55022, EN 55024 Class A; ETS 300 386
- Safety: ITU-T K.20, Appendix C; CSA 60950; EN 60950; IEC 60950; UL 60950
- Reliability: ETS 300 019
- NEBS Compliant

## Product Description

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|---------------------|-------------------------------------------------|
| <b>IES-1248-51</b>  | 48-port Remote ADSL2+ DSLAM over POTS, DC Input |
| <b>IES-1248-51A</b> | 48-port Remote ADSL2+ DSLAM over POTS, AC Input |
| <b>IES-1248-53</b>  | 48-port Remote ADSL2+ DSLAM over ISDN, DC Input |

For more product information, visit us on the web at [www.ZyXEL.com](http://www.ZyXEL.com)

