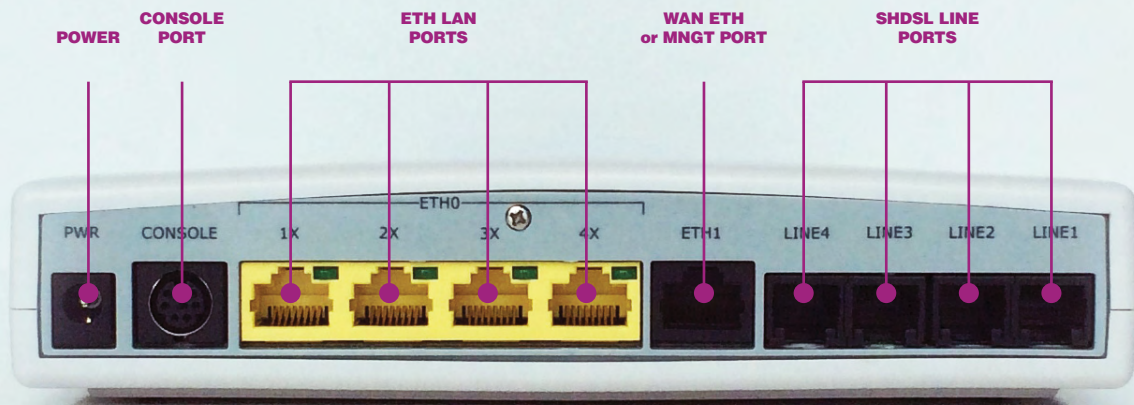


AS Series MODEMS AND ROUTERS



ADVANCED LAYER 2 AND 3 FEATURES

Extensive IP routing and ethernet functionalities with advanced QoS. Bonding support up to 4 copper pairs.

SECURE

Data protection with IPSEC encryption and firewall security.

INNOVATIVE

SHDSL.bis ATM and EFM support, with full EFM functionalities (eg. 64/65B encapsulation, PAF for aggregation) HW-implemented.

| AS Series | USE | WAN | TC-PAM | LAN | L2 MODE | L3 MODE |
|--------------------|--------|--|------------------|--------|---------|---------|
| AS2221 | modem | SHDSL.bis ¹ (2 pairs, EFM only) FE | 4/8/16/32 | 1 x FE | ✓ | - |
| AS2421 | modem | SHDSL.bis ¹ (2 pairs, EFM only) FE | 4/8/16/32 | 1 x FE | ✓ | - |
| AS2251 | router | SHDSL.bis ¹ (4 pairs, EFM only) FE | 4/8/16/32 | 4 x FE | ✓ | ✓ |
| AS2451 | router | SHDSL.bis ¹ (4 pairs, EFM only) FE | 4/8/16/32 | 4 x FE | ✓ | ✓ |
| AS2451AE | router | SHDSL.bis ² (4 pairs, ATM and EFM) FE | 4/8/16/32 | 4 x FE | ✓ | ✓ |
| AS2451 Plus | router | SHDSL.bis ¹ (4 pairs, EFM only) FE | 4/8/16/32/64/128 | 4 x FE | ✓ | ✓ |

NOTES

¹ EFM support only

² ATM and EFM support

Traffic Management Capabilities

Aethra Telecommunications AS Series modems and routers are a EFM or ATM/EFM SHDSL solution for high performance connections. They supports traffic shaping and Quality of Service at layer 2 (modems) and both layer 3 and layer 2 (routers).

AS Series routers also provide interworking mechanisms between the two layers, which allow Telecom Operators the maximum flexibility in defining traffic management policies for transit switches/routers in their access & core networks.

Ethernet Demarcation Devices

AS Series modems and routers offer Ethernet Demarcation features for business services with guaranteed SLAs.

Ethernet OAM features include SAM implementation according to ITU-T Y.1564; this grants the operators the possibility to offer and validate business-class ethernet services for their customers.

Full IP Services & Security Features

AS2451AE provides advanced routing and bridging configuration also offering firewall functionality and VPN data protection (including IPSec hardware encryption).

Powerful Configuration & Management

AS2451AE offers a web-based interface for easy configuration and monitoring. It includes remote management via an internal web server (HTTP and HTTPS), Telnet or SSH server using the Command Line Interface.

TECHNICAL SPECIFICATIONS

LED Indicators

- POWER
- ETH0
- ETH1
- SHDSL LINE (L1 L2, L3, L4)

Physical Interfaces

- 4-port 10/100bT switch with RJ-45 connectors (Eth0) (AS2251/AS2451/AS2451AE)
- 1-port 10/100bT with RJ-45 connectors (Eth0) (AS2211/AS2421)
- 1-port 10/100bT with RJ-45 connectors (Eth1)
- 1-port console with MiniDIN 8P connector

SHDSL Network Interfaces

- 2-4-pair ShDSL.bis interface, ATM support or ATM/EFM support (for AS2451AE)
- ETSI TS 101 524
- ITU G.991.2 Annex A
- ITU G.991.2 Annex B
- ITU G.991.2 Annex F
- ITU G.991.2 Annex G
- ITU-T G.998.2 Ethernet bonding
- IEEE 802.3ah EFM
- Line code TC-PAM 4/8/16/32/64/128
- Line rate from 192 kbps to 61200 kbps (with 4-pair bonding)

IP Functions

- IP Routing
 - RIP v1/v1c/v2, BGP, OSPF
 - Enhanced Network Address and Port Translation (NAPT) engine, with multiple
 - ALGs (including SIP, TFTP and H.323)
 - DHCP Server/Client/Relay, DHCP Learning
 - Multicast IGMP v1/v2/v3, PIM-SM, Static
- Routing Filtering Redistribution
- Firewalling
- Extended Access Lists
- Stateful Packet Inspection including Denial of Service attacks
- IP Services
 - DNS proxy
 - DDNS client
 - VPN (GRE, IP, PPTP server/client)
 - IPSec with DES, 3DES and AES
 - ICMP, IGMP snooping, Telnet, TFTP

- Layer 3 QoS according to DiffServ model (RFC2474, RFC2475)
- Priority based queuing (Absolute Priority, WFQ, RED)
- Extensive monitoring, tracing and troubleshooting facilities

Ethernet Services

- Self Learning Bridge with up to 1k MAC addresses and automatic ageing
- Full-Duplex IEEE 802.3x
- Half-Duplex back pressure flow control
- Automatic MDI/MDI-X crossover
- Broadcast/Multicast storm protection
- VLANs (802.1Q and 802.1p) port based management
 - Tag/Re-Tag/Untag
 - Trunking (VLAN multiplexing)
 - Priority based queuing

ATM

- Services
 - Up to 16 VCCs
 - Class of Services (CBR, VRB-rt, VBR-nrt, UBR+, UBR)
 - Voice and Data packets over different VCCs (VC bundling)
 - Selective CLP marking
 - F4/F5 OAM cells, AIS and RDI

Access Protocols

- PPP over Ethernet (RFC2516)
- IEEE 802.3
- IP over AAL-5, Ethernet over AAL-5 (RFC2684)
- PPP over AAL-5 (RFC2364)
- LLC/SNAP and VC encapsulation

Authentication

- PAP/CHAP/MS-CHAPv1 and v2 authentication

Service Resiliency

- VRRP (RFC2338)

Management & Configuration

- Password Protected Access
 - 2 login levels + configurable privilege access right
 - AAA and local authentication
 - TACACS+
- Local Management
 - Console port
 - Extensive CLI

- Remote Management
 - CLI (internal Telnet Server)
 - HTTP (embedded WEB Server)
 - HTTPS (embedded Secure HTTP WEB Server)
 - SNMP Agent (v1, v2c, v3)
 - SSH
 - Syslog
 - Network Performance Monitor
 - Ping MIB
 - TR-069⁽³⁾
- Firmware upgrades: Local and Remote (TFTP & FTP client embedded)

Ethernet OAM Features

- Link Layer OAM (IEEE 802.3ah OAM)
- Service Layer OAM (IEEE 802.1ag Connectivity Fault Management)
- ITU-T Y.1731 Performance Monitoring
- SAM according to ITU-T Y.1564

Environment

- Operating Temperature:
 - 5° ÷ 45°C (23° ÷ 113°F)
- Non-Operating Temperature:
 - 40° ÷ 70°C (-40° ÷ 158°F)
- Operating Humidity:
 - 10 ÷ 93% (noncondensing)

Compliance & Approvals

- Storage:
 - ETSI EN 300 019-2-1 T 1.3
- Transportation:
 - ETSI EN 300 019-2-2 T 2.3
- Operating Conditions:
 - ETSI EN 300 019-2-3 T 3.2
- EMC:
 - EN 55022, EN 55024,
 - EN 61000-3-2, EN 61000-3-3
- Protection: ITU-T K.21
- Safety: EN 60950-1

Power

- External power supply
- AC input voltage: 100-240 Vac
- AC input frequency: 50/60 Hz
- AC input current: 0,2A

DISCLAIMER

The information provided in this document is subject to change without notice, and should not be construed as a commitment or as an implied warranty of merchantability.

Le informazioni contenute in questo documento sono soggette a modifiche senza preavviso e non possono essere interpretate come impegno o garanzia implicita di commerciabilità.



071073088GB Rev.3 (16/07)