

# SV1021, SV1042 & SV2042

VoIP IAD, 4 simultaneous voice calls  
FXS and ISDN BRI mix  
ADSL2/2+ or ShDSL



Next Generation Networks introduction  
Ideal solution for integrating high-quality voice and data services over IP networks for SOHO and SME customers at superior cost savings

Immediate roll-out  
Compatible and interoperable with most standard-based DSLAMs and SoftSwitches

Flexible  
Mixed voice ports configuration allow Operators to optimise their offer



Aethra Integrated Access Devices (IADs) enable Network Operators and ISPs to effectively deploy Next Generation Networks based on Voice over IP technology offering to Small and Medium Businesses integrated broadband data and carrier-class voice services over a single copper pair either on ADSL2/2+ (SV1021/SV1042) or ShDSL (SV2042).

#### Efficient Integration

The SV family guarantees seamless installation and the highest degree of compatibility with every type and brand of legacy telephony devices, including fax machines, phone sets, answering machines, and modems. An optional fully managed backup battery unit is also available for service continuity in case of mains faults.

#### Full IP Services

The SV IADs provide advanced routing and bridging capabilities also offering firewall functionality to prevent unauthorized hosts from externally accessing the internal LAN. A variety of VPNs is also supported to protect data exchanged over a public IP network among branch offices and the corporate headquarters.

#### Remote Maintenance

A number of remote maintenance features are available, including diagnostics for user ports.

#### Extensive Configuration

Aethra IADs are based on the Session Initiation Protocol (SIP) 2.0 and supports up to 4 VoIP calls either on a mix of FXS and ISDN ports.

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## Technical Specifications

### LED Indicators

- PWR
- RDY (Fail)
- EMERG.
- ISDN (1 or 2)
- FXS (2 or 4)
- LAN
- xDSL Line

### Physical Interfaces

- FXS ports: 2 or 4 with RJ-11 and spring connectors
- ISDN-BRI ports: 1or 2 with RJ-45 connectors
- 1 10/100bT Ethernet port with RJ-45 connectors
- 1 console port with MiniDIN 8P connector

### ADSL Network Interfaces

- ADSL2/2+ interface (SV1021, SV1042 models)
- ITU-T G.992.1 (g.dmt), G.992.2 (g.lite)
- ITU-T G.992.3 (ADSL2 or g.dmt.bis)
- ITU-T G.992.4 (g.lite.bis)
- ITU-T G.992.5 (ADSL2+)
- Downstream line rate: up to 24 Mbps
- Upstream line rate: up to 1 Mbps, up to 3.5 Mbps with Annex M

### ShDSL Network Interfaces

- 2-wire ShDSL interface (SV2042 model)
- ETSI TS 101 524
- ITU G.991.2 Annex B
- Line rate up from 200 kbps to 2312 kbps

### Voice Interfaces

- FXS
  - Compliant to Q.552 requirements
  - Port impedance: real 600 $\Omega$  or complex Euro values
  - Low distortion ringing voltages
  - Diagnostic features
- ISDN-BRI
  - 1 or 2-port NT
  - Fully compliant to L1 standards (ETSI ETS 300 012)
  - PP and PMP configuration

### Voice Processing

- Voice Codes
  - ITU-T G.711 (A-law,  $\mu$ -law)
  - ITU-T G.729a (Factory Setup Option)
  - ITU-T G.726 (VoATM mode only)
  - Transparent pass-through
- ITU-T G.165/G.168 echo cancellation
- Voice Activity Detection and Comfort Noise Generation
- RTP/RTCP (RFC 1889)
- 4 Voice Channels VoIP

### Signalling

- Euro ISDN EDSS-1 / ETSI BRI/NET3
- ETS 300 125 (ITU-T Q.921)
- ETS 300 102-1 (ITU-T Q.931)
- Q-SIG (PSS-1)
- SIP 2.0 according to RFC 3261 (TCP or UDP transport)
- En-block and Overlap sending
- ISDN speech, audio and data (Fax Gr 4, UDI 64, RDI 64)
- DTMF detection and carrying (RFC2833), DTMF info
- Local Generation of:
  - Dial tone
  - Ring back tone (180 Ringing reply)
  - Call Waiting tone
  - Busy tone
  - Fast Busy tone

### Fax and Modem Support

- T.38 fax relay
- Automatic G.711 Fax and Modem Pass-Through

### Supplementary Services<sup>1</sup>

- Locally managed<sup>2</sup> or Softswitch-based
  - Call hold
  - Consultation call
  - Call waiting
  - Call Forwarding
  - Caller Identity Presentation (CLIP)
  - (DTMF and FSK based)
  - Identity restriction
  - Call transfer
  - 3party conference (FXS only)
  - MSN

### DDI Bundle

- GNR Management
- Multi-port to one number association and vice versa
- Multi-port to multi-number range association

### 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, Static
- Routing Filtering Redistribution
- Firewalling
  - Extended Access Lists
  - Stateful Packet Inspection including Denial of Service attacks
- IP Services
  - DNS proxy
  - 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 8 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
  - ATM: ITU T-I.361, ITU T-I363.5, ITU T-I432, ITU T1610, ITU T-I731

### Access protocols

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

### Authentication

- PAP/CHAP/MS-CHAPv1 and v2 authentication
- Basic and Digest schemes (RFC2617)

### Service Resiliency

- VRRP (RFC2338)

### Management & Configuration

- Password Protected Access
  - 2 login levels
  - AAA and local authentication
- Local Management
  - Console port
  - Extensive CLI
  - Windows<sup>®</sup> based wizard for configuration and firmware download
- Remote Management
  - CLI (internal Telnet Server)
  - HTTP (embedded WEB Server)
  - SNMP Agent (v1, v2c)
  - Syslog
  - Ping MIB
- Firmware upgrades: Local and Remote (TFTP client embedded)

### Environment

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

### Compliance & Approvals

- Storage: ETSI EN 300 019-2-1 T 1.3
- Transportation: ETS 300 019-2-2, T 2.3
- Operating Conditions: ETS 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 to 240 Vac
- AC input frequency: 50 to 60 Hz
- AC input current: 0.2 to 0.38 A
- Power Backup Unit (PBU)

### Models

Models	WAN Ifcs			LAN Ifcs	
	ADSL2+	ShDSL	FXS	ISDN BRI	Eth (1x)
SV1021	x		2	1	x
SV1042	x		4	2	x
SV2042		x	4	2	x

### Notes

<sup>1</sup> Supplementary Services management is not yet fully standardised by international bodies and their implementation could be subject to revisions

<sup>2</sup> Depending on the specific service, a common implementation between the IAD and the Softswitch needs to be agreed

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