

# SV6044

VoIP IAD, 8 simultaneous voice calls

FXS & ISDN BRI mix and WAN Eth

WiFi 802.11b/g, VDSL2/ADSL2+, G.ShDSL.bis or V/X



Next Generation Networks Introduction  
Ideal solution for integrating high-quality voice and data services over IP networks and providing high-speed download and upload for SME customers

Flexible  
Mixed voice ports configuration, ISDN for data backup, WiFi 802.11b/g option, multiple WAN connectivity options make it suitable for a variety of applications



The SV6044 family of Integrated Access Devices enables Network Operators and ISPs to effectively deploy Next Generation Networks based on Voice over IP technology. A variety of fixed configurations allows an exhaustive offer to Small and Medium Enterprise integrating broadband data and carrier-class voice services over Ethernet, VDSL2/ADSL2+, G.ShDSL.bis or V/X.

#### Fast Integration and "Five-9s" Service Availability

The SV6044 ensures seamless installation and the highest degree of compatibility with every type and brand of legacy telephony devices. An optional fully managed backup battery unit is also available for service continuity in case of mains faults. Moreover, besides Virtual Router Redundancy Protocol, two of the ISDN-BRI ports can be set to perform data backup thus guaranteeing a reliable resiliency.

#### VDSL2 High-Speed and High-Performance Internet Access

The SV6044 family offers, in addition to the default WAN Eth connectivity, a fixed configuration with VDSL2 line interface (backward compatible with ADSL2/2+), with G.ShDSL.bis or even V/X multiprotocol serial interface.

All VDSL2 profiles up to 30Mhz can be configured, reaching downstream and upstream rates of up to 140 Mbps.

#### Full IP Services & Security Features

The SV6044 provides advanced routing and bridging configuration also offering firewall functionality and VPN data protection (including IPSec hardware encryption). Moreover, a software upgrade for IP-PBX capability makes it ready for full-IP scenarios.

# SV6044

## Technical Specifications



### LED Indicators

- Power/Ready
- ISDN (1-4)
- FXS (1-4)
- Eth0 (1-4)
- Eth1
- Wi-Fi
- Internet
- xDSL Line/Internet

### Physical Interfaces

- 4-port FXS with RJ-11 connectors
- 4-port ISDN-BRI with RJ-45 connectors
- 4-port 10/100bT Fast Ethernet Switch with RJ-45 connectors (Eth0)
- 1-port 10/100bT Fast Ethernet with RJ-45 connectors (Eth1)
- Sync IN/OUT ports with 2 Stereo Jack 3,5 mm connectors
- 1-port USB 1.1\*
- 1-port Compact Flash\*
- 1-port console with MiniDIN 8P connector

### VDSL2/ADSL2+ Network Interface (Factory Setup)

- VDSL2 backward compatible with ADSL2/2+ interface
- VDSL2 interface
  - ITU-T G.993.2
  - Downstream and upstream line rates up to 140 Mbps
  - Profiles: 8a, 8b, 8c, 8d, 12a, 12b, 17a, (30a\*)
  - DELT
- ADSL2/2+ interface\*
  - ITU-T G.992.1 Annex A (ADSL1)
  - ITU-T G.992.3 Annex A (ADSL2)
  - ITU-T G.992.5 Annex A (ADSL2+)
  - ITU-T G.992.3 Annex L (ADSL2+)
  - T1.413
  - 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 (Factory Setup)\*

- 2/4-wire G.ShDSL.bis interface
- 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
- IEEE 802.3ah EFM
- Line rate up from 72 kbps to 11400 kbps

### WiFi Interface (Factory Setup)

- IEEE 802.11b/g
- WEP encryption (64/128-bit)
- WPA1 and WPA2
- IEEE 802.1x authentication
- MAC filtering

### Voice Interfaces

- FXS
  - Compliant to Q.552 requirements
  - Port impedance: real 600 or complex Euro values
  - Low distortion ringing voltages
  - Diagnostic features
- ISDN-BRI
  - 2-port NT + 2-port NT/TE
  - 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)
  - Transparent pass-through
- ITU-T G.165/G.168 echo cancellation
- Voice Activity Detection and Comfort Noise Generation
- RTP/RTCP (RFC1889)
- 8 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
  - Sparty 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, PIM-SM, 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

### IP-PBX (Software Upgrade Option)\*

- Basic Call Features: Call Waiting, Call Parking, Call Queuing, Call Retrieval, Call Back / Call Back on Busy
- Call Forwarding Features: Call Transfer (Unattended Transfer), Blind Transfer, Call Forward on Busy (CFB), Call Forward on No Answer (CFNA)
- Privacy Features: Blacklist, Call ID-Blocking, Do Not Disturb (DND)
- Presentation Features: Calling Line Identification Presentation (CLIP), Calling Line Identification Restriction (CLIR), Caller-ID, Caller-ID on Call Waiting, Distinctive Ring, Music On Hold / Music On Transfer
- Advanced Call Features: Route by Caller-ID, Remote Call Pickup, Local and Remote Call Agents, Predictive Dialer, Privacy Manager, Call Log
- Conference Features: Conference Bridging, Three Way Calling (PCC), Remote Office Support
- Interactive Menu Features: Automated Attendant (AA), Interactive Voice Response (IVR), Interactive Directory Listing
- Special Call Delivery: Features: Direct Inward Dialing Number (DID or DDI), Voice Mail, Message Waiting Indication (MWI)

### 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

### Frame Relay on V/X (Factory Setup)

- QoS Management
- FRF.12
- LMI: Q.933a, T1.617
- Multiprotocol over Frame Relay (RFC1490)
- DLCI bundling

### 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

- ISDN backup
- VRRP (RFC2338)
- Dial on Demand Routing

### 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)
  - SSH
  - Syslog
  - Network Performance Monitor
  - 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: 230 Vac
- AC input frequency: 50 Hz
- AC input current: 0.5 A
- Power Backup Unit (PBU)

Models	WAN Ifcs				LAN Ifcs	
	Eth	V/X	VDSL2 /ADSL2+	ShDSL	Eth (4x)	WiFi
SV6044	x				x	opt
SV6044V	x		x		x	opt
SV6044S	x			x	x	opt
SV6044-Vx	x	x			x	opt

### Notes

\* Available in future releases by FW upgrade

<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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