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CISCO SYSTEMS

ATA Solution with a PSTN Gateway
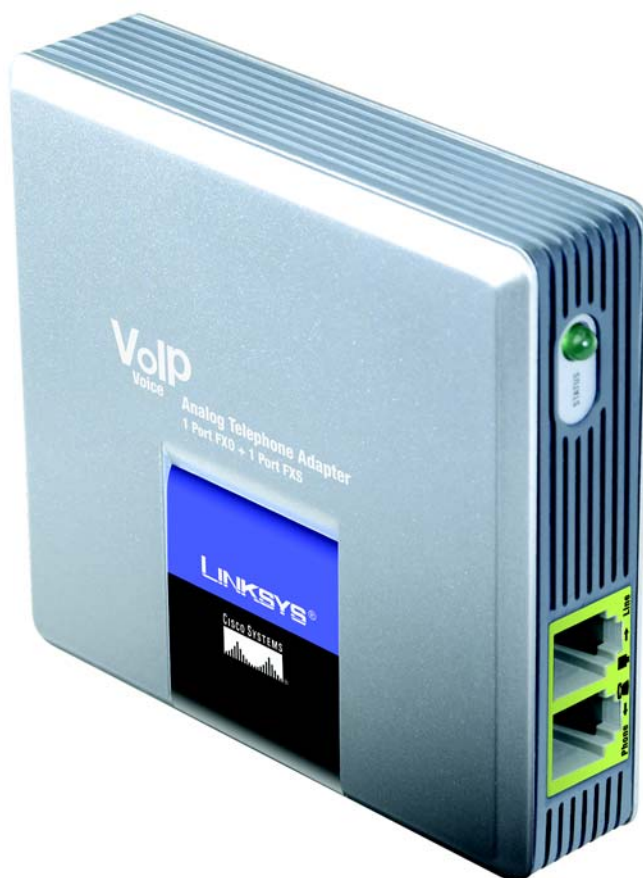
Toll Quality Voice and Carrier-Grade Feature Support

The SPA3000 delivers clear, high-quality voice communication in a variety of network conditions. Excellent voice quality in challenging, changeable IP network environments is made possible via our advanced implementation of standard voice coding algorithms. The SPA3000 is interoperable with common telephony equipment like facsimile, voicemail, PBX/KTS and interactive voice response systems.

Large-Scale Deployment and Management

The SPA3000 offers all the key features and capabilities with which service providers can provide customized services to their subscribers. The SPA3000 can be remotely provisioned and supports dynamic, in-service software upgrades. A secure profile upload saves providers the time, expense and hassle of managing and pre-configuring or re-configuring customer premise equipment (CPE) for deployment.

Ironclad Security

The SPA3000 supports secure, encryption-based methods for communication, provisioning and servicing.

Model No. **SPA3000**

Features

Telephony
- VoIP to PSTN (USA) Service Call Origination and Termination
- PSTN (USA) to VoIP Service Call Origination and Termination
- Single or Dual Stage Dialing
- Service Authentication via PIN, Digest, Caller ID (Bellcore Type 1)
- Per Call Authentication and Associated Routing
- Least Cost Routing Support
- Impedance Agnostics - 8 Settings
- Call Waiting, Cancel Call Waiting, Call Waiting Caller ID Detection (Bellcore Type 1)
- Caller ID with Name/Number (Multi-national Variants)
- Caller ID Blocking
- Call Forwarding to PSTN or VoIP Service: No answer, Busy, All
- Do Not Disturb
- Call Transfer
- Three-way Conference Calling with Local Mixing
- Message Waiting Indication - Visual and Tone Based
- Call Return
- Call Back on Busy
- Call Blocking with Toll Restriction
- Delayed Disconnect
- Distinctive Ringing - Calling and Called Number
- Off-hook Warning Tone
- Selective/Anonymous Call Rejection
- Hot line and Warm Line Calling
- Speed Dialing of 8 Numbers/Addresses
- Music on Hold

SPA Specific
- Forward Calls to VoIP service - Selective, Authenticated, All
- Forward Calls to PSTN service - Selective, Authenticated, All
- PSTN Line Sharing with Multiple Extensions
- Automatic PSTN Fallback (Loss of Power or IP Service to Unit - with Quiescence to Normal Operations)
- Advanced Inbound and Outbound Call Routing
- Single Stage and Two Stage Dialing
- Independent Configurable Dial Plans - Up to 8
- Force PSTN Disconnection
- Sequential Dialing Support

VoIP to PSTN Authentication and Routing
- VoIP to PSTN Gateway Enable/Disable
- VoIP Caller Auth Method (None, PIN, HTTP Digest)
- VoIP PIN Max Retry Setting
- One Stage Dialing Enable/Disable
- VoIP Caller ID Pattern Matching
- VoIP Access Allowed Caller List (No Further Authentication)
- VoIP Caller PIN and Associated Dial Plan

PSTN to VoIP Authentication and Features
- PSTN to VoIP Gateway Enable/Disable
- Caller Auth Method: None, PIN, Caller ID
- Ring Through to FXS Enable/Disable
- Ring Through Tone - Configurable
- Caller ID (Bellcore 1) for VoIP Service Access
- Caller ID Enable/Disable
- PIN Max Retry Settings
- Access Allowed Caller List (No Further Authentication)
- Caller PIN and Associated Dial Plan
- Least Cost Routing (via Outbound VoIP - Line1 Dial Plan)

FXO Behavior

• VoIP Answer Delay Timer
• PSTN Answer Delay Timer
• VoIP PIN Digit Time-Out Timer
• PSTN PIN Digit Time-Out Timer
• PSTN-to-VoIP Call Max Dur Timer
• VoIP-to PSTN Call Max Dur Timer
• PSTN Ring Through Delay Timer
• PSTN Dialing Delay Timer
• VoIP DIG Refresh Interval Timer
• PSTN Ring Time-out Timer

PSTN Disconnection Detection

• CPC (Removal of Tip/Ring Voltage Momentarily)
• Polarity Reversal
• Long Silence (Confugrable Time Setting)
• Disconnect Tone (e.g. Reorder Tone)

International Control

• FXO Port Impedance - Configurable to 16 settings
• Ring Frequency - Configurable
• SPA to PSTN and PSTN to SPA Gain Settings
• Ring Frequency - Maximum Setting
• Ring Validation Time Setting
• Tip/Ring Voltage Adjustment Setting
• Ring Indication Delay Setting
• Operational Loop Current Minimum Value
• Ring Time-out Setting
• On-Hook Speed Setting
• Ringer Impedance Setting
• Line-in-Use Voltage Setting

Regulatory Compliance

• FCC (Part 15 Class B and Part 68) , CE , ICES-003

Security

• Password Protected System Reset to Factory Default
• Password Protected Admin and User Access Authority
• Provisioning/Configuration/Authentication: HTTPS with Factory Installed Client Certificate
• HTTP Digest - Encrypted Authentication via MD5 (RFC 1321)
• Up to 256-bit AES Encryption

Documentation

• Quick-Start Installation and Configuration Guide
• User Guide
• Administration Guide - Service Providers Only
• Provisioning Guide - Service Providers Only

Package Contents

• 1 - SPA3000 Phone Adapter Unit
• 1 - 5v Power Adapter - 1.8m (6 ft) Cord
• 1 - RJ45 Ethernet Cable - 1.8m (6 ft) Cord
• 1 - RJ11 Telephone Cable - 1.8m (6 ft) Cord

Environmental

Dimensions	4.05 x 1.1. x 3.75 in (102.87 x 27.94 x 95.25 mm) W x H x D
Unit Weight	2.15 lb (0.975 kg)
Operating Temp.	41º~113ºF (5º~45ºC)
Storage Temp.	-13º~185ºF (-25º~85ºC)
Operating Humidity	10~90% Non-condensing
Storage Humidity	10~90% Non-Condensing

Specifications

Model	SPA-3000
	* Note: Many specifications are programmable within a defined range or list of options. Please see the SPA Administration Guide for details. The configuration profile is uploaded to the SPA3000 at the time of provisioning.
Data Networking	MAC Address (IEEE 802.3)
	IPv4 - Internet Protocol v4 (RFC 791) upgradeable to v6 (RFC 1883)
	ARP - Address Resolution Protocol
	DNS - A Record (RFC 1706), SRV Record (RFC 2782)
	DHCP Client - Dynamic Host Configuration Protocol (RFC 2131)
	ICMP - Internet Control Message Protocol (RFC792)
	TCP - Transmission Control Protocol (RFC793)
	UDP - User Datagram Protocol (RFC768)
	RTP - Real Time Protocol (RFC 1889) (RFC 1890)
	RTCP - Real Time Control Protocol (RFC 1889)
	DiffServ (RFC 2475), Type of Service - TOS (RFC 791/1349)
	SNTP - Simple Network Time Protocol (RFC 2030)
Voice Gateway	SIPv2: Session Initiation Protocol v2 (RFC 3261, 3262, 3263, 3264)
	SIP Proxy Redundancy - Dynamic via DNS SRV, A Records
	Re-registration with Primary SIP Proxy Server
	SIP Support in Network Address Translation Networks - NAT (incl. STUN)
	Secure (Encrypted) Calling via Pre-Standard Implementation of Secure RTP
	Codec Name Assignment
Voice Algorithms	G.711 (A-law and μ-law),
	G.726 (16/24/32/40 kbps),
	G.729 A,
	G.723.1 (6.3 kbps, 5.3 kbps)
	Dynamic Payload
	Adjustable Audio Frames per Packet
Fax Capability	Fax Tone Detection and Pass-Through (Using .711)
	DTMF: In-band & Out-of-band (RFC 2833) (SIP Info)
	Flexible Dial Plan Support with Interdigit Timers and IP Dialing
	Call Progress Tone Generation
	Jitter Buffer - Adaptive
	Frame Loss Concealment
	Full Duplex Audio
	Echo Cancellation (G.165/G.168)
	VAD - Voice Activity Detection with Silence Suppression
	Attenuation / Gain Adjustments
	Flash Hook Timer
	MWI - Message Waiting Indicator Tones
	VMWI - via FSK
	Polarity Control
	Hook Flash Event Signaling
	Caller ID Generation (Name & Number) - Bellcore, DTMF, ETSI
	Music on Hold Client
	Streaming Audio Server - up to 10 sessions
Provisioning, Administration & Maintenance:	Web Browser Administration & Configuration via Integrated Web Server
	Telephone Key Pad Configuration with Interactive Voice Prompts
	Automated Provisioning & Upgrade via HTTPS, HTTP, TFTP
	Asynchronous Notification of Upgrade Availability via SIP NOTIFY
	Non-intrusive, In-Service Upgrades
	Report Generation & Event Logging
	Stats in BYE Message
	Syslog & Debug Server Records - Per Line Configurable
Physical Interfaces:	1 10baseT RJ-45 Ethernet Port (IEEE 802.3)
	1 RJ-11 FXS Phone Ports - For Analog Circuit Telephone Device (Tip/Ring)
	1 RJ-11 FXO Phone Ports - For a Telco or PBX Connection
FXS: Subscriber Line Interface Circuit (SLIC):	Ring Voltage: 40-55 VRMS Configurable l*
	Ring Frequency: 10 Hz - 40 Hz l*
	Ring Waveform: Trapezoidal and Sinusoida l*
	Maximum Ringer Load: 3 REN
	On-hook/off-hook Characteristics:
	On-hook voltage (tip/ring): -50 V NOMINAL
	Off-hook current: 25 mA min
	Terminating Impedance: 8 Configurable Settings including North America 600 ohms, European CTR21
Power Supply:	DC Input Voltage: +5 VDC at 2.0 A Max.
	Power Consumption: 5 Watts
	Switching Type (100-240v) Automatic
	Power Adapter: 100-240v - 50-60Hz (26-34VA) AC Input, 1.8m cord
Indicator Lights/LED:	LAN Activity/Link LED, Status LED (In-Use, Povisioning, Idle, Alert)

The SPA3000 features the same VoIP adapter functionality found in the SPA1000 and SPA2002 with an additional benefit of an integrated connection for legacy telephone network "hop-on, hop-off" applications. SPA3000 users will be able to leverage their broadband phone service connections more than ever by automatically routing local calls from cell phones and land lines to VoIP service providers and vice versa. If power is lost to the unit or Internet service is down, calls can be redirected to a traditional carrier via the FXO interface.

A user calling from a land line or mobile phone will be able to reduce and even eliminate international and long distance telephone charges by first calling their SPA3000 via a local phone number. The advanced authentication and call routing intelligence programmed into the SPA3000 will connect the caller via the Internet to the far end destination. Using the SPA3000 at the far end, calls can be answered immediately or further processed as a local call to any legacy land line or mobile phone.

The SPA3000 supports one RJ11 POTS (Plain Old Telephone Service) FXS port for connection to existing analog phones and fax machines. The SPA3000 also supports one PSTN FXO port connection to a Telco or PBX circuit. The SPA3000 includes an RJ45 Ethernet interface for connection to a home or office LAN. The SPA3000 FXS and FXO lines can be independently configured via software controlled by the service provider or the end user.

Installed by the end user and remotely provisioned, configured and maintained by the service provider, each SPA3000 converts voice traffic into data packets for transmission over an IP network. The SPA3000 can be used in consumer and business IP telephony service offerings including full-featured IP Centrex. The SPA3000 delivers clear sounding voice and reliable fax calling using international standards for voice and data networking.

Linksys Phone Adapter Comparison Chart

SPA Model	Service Lines	Active Calls	3-Way Conferences	PSTN (FXO) Connection
SPA1001	2	2	1	0
SPA2002	2	4	2	0
SPA2100	2	4	2	0
SPA3000	2	3	1	1

SPA3000-SP-DS- 60123NC BW