Cisco SPA2102 Phone Adapter with Router
Cisco Small Business Voice Gateways and ATAs

Feature-Rich Voice Adapter for VoIP

Highlights

- Enables high-quality, feature-rich voice-over-IP service through your broadband Internet connection
- Two standard phone ports for use with analog telephones or fax machines, with independent phone numbers
- High-quality, clear-sounding voice service using advanced quality-of-service capability
- Compatible with common telephone features, such as caller ID, call waiting, call forwarding, and voicemail

Figure 1.   Cisco SPA2012 Phone Adapter with Router

Product Overview

Inexpensive, easy to install, and simple to use, the Cisco® SPA2102 Phone Adapter with Router (Figure 1) connects a standard telephone or fax machine to an IP-based data network. Voice over IP (VoIP) service providers can offer residential and business users traditional and enhanced communication services via the customer's broadband connection to the Internet.

The Cisco SPA2102 features two basic telephone ports to connect existing analog phones or fax machines to a private branch exchange (PBX) system. It also includes two 100BASE-T RJ-45 Ethernet interfaces to connect to a home or office LAN, as well as an Ethernet connection to connect a broadband modem or router (WAN). Each phone line can be configured independently via software controlled by the service provider or the end user. With the SPA2102, users are able to protect and extend their investment in their existing analog telephones, conference

speakerphones, and fax machines, as well as control their migration to IP with an extremely affordable, reliable solution.

Installed by the end user and remotely provisioned, configured, and maintained by the service provider, each Cisco SPA2102 converts voice traffic into data packets for transmission over an IP network. Compact in design, the SPA2102 can be used in consumer and business VoIP service offerings, including full-featured IP Centrex environments. The SPA2102 uses international standards for voice and data networking for reliable operation.

Features

- Toll-quality voice and carrier-grade feature support: The Cisco SPA2102 delivers clear, high-quality voice communication under a variety of network conditions. Excellent voice quality in challenging, changeable IP network environments is made possible via the advanced implementation of standard voice coding algorithms. The SPA2102 is interoperable with common telephony equipment such as fax, voicemail, PBX/KTS, and interactive voice response systems.
- Large-scale deployment and management: The Cisco SPA2102 enables service providers to provide customized services to their subscribers. It can be remotely provisioned and supports dynamic, in-service software upgrades. A highly secure profile upload saves providers the time and expense of managing and preconfiguring or reconfiguring customer premises equipment (CPE) for deployment.
- Ironclad security: The Cisco SPA2102 supports highly secure, encryption-based methods for communication, provisioning, and servicing.

Specifications

Table 1 contains the specifications and package contents for the Cisco SPA2012 Phone Adapter with Router.

Table 1.   Specifications for the Cisco SPA2012 Phone Adapter with Router

Specifications	
Data networking	• MAC address (IEEE 802.3) • IPv4 (RFC 791) • Address Resolution Protocol (ARP) • DNS-A record (RFC 1706), SRV record (RFC 2782) • Dynamic Host Configuration Protocol (DHCP) client (RFC 2131) • DHCP server (RFC 2131) • Internet Control Message Protocol (ICMP) (RFC 792) • TCP (RFC 793) • User Datagram Protocol (UDP) (RFC 768) • Real Time Protocol (RTP) (RFC 1889, 1890) • Real Time Control Protocol (RTCP) (RFC 1889) • Differentiated Services (DiffServ) (RFC 2475), type of service (ToS) (RFC 791, 1349) • Simple Network Time Protocol (SNTP) (RFC 2030) • Upload data rate limiting: static and automatic • Quality of service (QoS): voice packet prioritization over other packet types • Router or bridge mode of operation • MAC address cloning • Port forwarding

Voice gateway	• Session Initiation Protocol (SIP) v2 (RFC 3261, 3262, 3263, 3264) 　◦ SIP proxy redundancy-dynamic via DNS SRV, A records 　◦ Reregistration with primary SIP proxy server • SIP support in Network Address Translation (NAT) networks (including Serial Tunnel [STUN]) • Highly secure (encrypted) calling via prestandard implementation of Secure RTP
Voice algorithms	• Codec name assignment • 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
Voice specifications	• Dual-tone multifrequency (DTMF): in-band and 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) • Voice activity detection (VAD) with silence suppression • Attenuation/gain adjustments • Flash hook timer • Message waiting indicator (MWI) tones • Visual message waiting indicator (VMWI) via frequency shift keying (FSK) • Polarity control • Hook flash event signaling • Caller ID generation (name and number)-Bellcore, DTMF, European Telecommunications Standards Institute (ETSI) • Music on hold client • Streaming audio server-up to 10 sessions
Fax capability	• Fax tone detection pass-through • Fax: G.711 pass-through or real-time fax over IP via T.38 (T.38 support is dependent on fax machine and network/transport resilience.)
Security	• Password-protected system reset to factory default • Password-protected administrator 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 Advanced Encryption Standard (AES) encryption
Provisioning, administration, and maintenance	• Web browser administration and configuration via integral web server • Telephone keypad configuration with interactive voice prompts • Automated provisioning and upgrade via HTTPS, HTTP, Trivial File Transfer Protocol (TFTP) • Asynchronous notification of upgrade availability via NOTIFY • Nonintrusive, in-service upgrades • Report generation and event logging • Stats in BYE message • Syslog and debug server records-per-line configurable • Per-line and purpose configurable syslog and debug options
Physical interfaces	• Two 100BASE-T RJ-45 Ethernet ports (IEEE 802.3) • 2 RJ-11 FXS phone ports-for analog circuit telephone device (tip/ring)
Subscriber line interface circuit (SLIC)	• Ring waveform: trapezoidal and sinusoidal * • Maximum ringer load: 3 ringer equivalence numbers (RENs) • On-hook/off-hook characteristics: 　◦ On-hook voltage (tip/ring): -50V nominal 　◦ Off-hook current: 25 mA min 　◦ Terminating impedance: 8 configurable settings including North America 600 ohms, European CTR21

Regulatory compliance	• FCC (Part 15, Class B) , CE, ICES-003
Power supply	• Switching type (100–240V) automatic • DC input voltage: +5V DC at 2.0A maximum • Power consumption: 5W • Power adapter: 100–240V, 50–60 Hz (26–34VA) AC input, 1.8-m cord
Indicator lights/LED	Power, Internet, Phone 1, Phone 2
Documentation	• Quick-start installation guide • Administration guide-service providers only • Provisioning guide-service providers only

Package Contents	
• Cisco SPA2012 Phone Adapter with Router • 5V power adapter • RJ-45 Ethernet cable • Quick installation guide	

Environmental	
Dimensions W x H x D	3.98 x 3.98. x 1.10 in. (101 x 101 x 28 mm)
Unit weight	5.29 oz (0.15 kg)
Operating temperature	32º~113ºF (0º~45ºC)
Storage temperature	-13º~185ºF (-25º~85ºC)
Operating humidity	10%~90% noncondensing
Storage humidity	10%~90% noncondensing

Product Warranty
1-year limited hardware warranty with return to factory replacement and 90-day limited software warranty

* Note: Many specifications are programmable within a defined range or list of options. Please see the Administration Guide for details. The configuration profile is uploaded to the Cisco SPA2102 at the time of provisioning.

Cisco Limited Warranty for Cisco Small Business Series Products

This Cisco Small Business product comes with a 1-year limited hardware warranty with return to factory replacement and a 90-day limited software warranty. In addition, Cisco offers software application updates for bug fixes and telephone technical support at no charge for the first 12 months following the date of purchase. To download software updates, go to: http://www.cisco.com/go/smallbiz.

Product warranty terms and other information applicable to Cisco products are available at http://www.cisco.com/go/warranty.

For More Information

For more information on Cisco Small Business products and solutions, visit: http://www.cisco.com/smallbusiness.