# LINKSYS®
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CISCO SYSTEMS

# Ready Voice Adapter Solution for VoIP



**Toll Quality Voice and Carrier-Grade Feature Support**
The SPA2102 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 SPA2102 is interoperable with common telephony equipment like facsimile, voicemail, PBX/KTS and interactive voice response systems.

**Large-Scale Deployment and Management**
The SPA2102 offers all the key features and capabilities with which service providers can provide customized services to their subscribers. The SPA2102 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 premises equipment (CPE) for deployment.

**Ironclad Security**
The SPA2102 supports secure, encryption-based methods for communication, provisioning and servicing.

Model No.   **SPA2102 (EU/UK)**

# PRODUCT DATA

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## Features

## Package Contents

## Specifications

**Telephony**

- Two voice ports (RJ11) for analog phones or Fax machines
- Impedance Agnostics - 8 Configurable Settings
- Call Waiting, Cancel Call Waiting, Call Waiting Caller ID
- Caller ID with Name/Number (Multi-national Variants)
- Caller ID Blocking
- Call Forwarding: 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
- Fax: G.711 Pass Through or Real Time Fax over IP via T.38

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- 1 - SPA2102 Phone Adapter Unit
- 1 - 5V Power Adapter
- 1 - RJ45 Ethernet Cable
- 1 - RJ11 Phone Cable (not included with all models)
- 1 - Quick Installation Guide

| | |
|---|---|
| Model | SPA-2102 |
| | * 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 SPA2102 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) |
| | DHCP Server - 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) |
| | Upload Data Rate Limiting - Static and Automatic |
| | QoS - Voice Packet Prioritization over Other Packet Types |
| | Router or Bridge Mode of Operation |
| | MAC Address Cloning |
| | Port Forwarding |
| 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 Pass-Through |
| | Fax Pass-Though - Using G.711 |

## Specifications

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 - Visual Message Waiting Indicator 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

**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

**Provisioning, Administration & Maintenance**
Web Browser Administration & Configuration via Integral Web Server
Telephone Key Pad Configuration with Interactive Voice Prompts
Automated Provisioning & Upgrade via HTTPS, HTTP, TFTP
Asynchronous Notification of Upgrade Availability via NOTIFY
Non-intrusive, In-Service Upgrades
Report Generation & Event Logging
Stats in BYE Message
Syslog & Debug Server Records - Per Line Configurable
Per Line and Purpose Configurable Syslog and Debug Options

**Physical Interfaces**
2  100baseT RJ-45 Ethernet Port (IEEE 802.3)
2  RJ-11 FXS Phone Ports - For Analog Circuit Telephone Device (Tip/Ring)

**Subscriber Line Interface Circuit (SLIC)**
Ring Voltage: 40-55 VRMS Configurable  *
Ring Frequency: 10 Hz - 40 Hz  *
Ring Waveform: Trapezoidal and Sinusoidal  *
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

**Regulatory Compliance**
North America 600 ohms, European CTR21
FCC (Part 15, Class B), CE, ICES-003

**Power Supply**
Switching Type (100-240v) Automatic
DC Input Voltage: +5 VDC at 2,0 A Max.
Power Consumption: 5 Watts
Power Adapter: 100-240v - 50-60Hz (26-34VA) AC Input, 1.8m cord

**Indicator Lights/ LEDs**
Power, Ethernet (WAN), Phone 1, Phone 2

**Documentation**
Quick Installation, User, and Configuration Guides are downloaded from
    www.linksys.com/international
Administration Guide - Service Providers Only
Provisioning Guide - Service Providers Only

## Environmental

| | |
|---|---|
| Dimensions | 101 x 101 x 28 mm W x H x D |
| Unit Weight | 150 g |
| Operating Temp. | 0º~45ºC |
| Storage Temp. | -25º~85ºC |
| Operating Humidity | 10~90% Non-Condensing |
| Storage Humidity | 10~90% Non-Condensing |

Inexpensive, easy to install and simple-to-use, the SPA2102 connects a standard telephone or fax machine to IP-based data networks. VoIP service providers can offer residential and business users traditional and enhanced communication services via the customer's broadband connection to the Internet.

The SPA2102 features two POTS (Plain Old Telephone Service) ports to connect existing analog phones, fax machines, or to a PBX system. The SPA2102 includes 2 100BaseT RJ45 Ethernet interfaces (LAN-WAN) to connect to a home or office LAN, as well as an Ethernet connection to a broadband modem or router (WAN). Each SPA2102 service line can be independently configured via software controlled by the service provider or the end user.

With the SPA2102, users are able to protect and extend their investment in 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 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 a full-featured IP Centrex environment. The SPA2102 uses international standards for voice and data networking for reliable voice and fax operation.

## 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 |
| SPA2100/2102 | 2 | 4 | 2 | 0 |
| SPA3100/3102 | 2 | 3 | 1 | 1 |
| SPA3000 | 2 | 3 | 1 | 1 |