

Cisco ATA 186 Analog Telephone Adaptor



The Cisco ATA 186 Analog Telephone Adaptor is a handset-to-Ethernet adaptor that interfaces regular analog telephones with IP-based telephony networks (Figure 1). The adaptor turns traditional telephones into IP telephones, and thus takes advantage of many new and exciting IP telephony applications.

Protects Legacy Telephone Investment

The Cisco ATA 186 is installed at the subscriber's premises and supports two voice ports, each with its own independent telephone number. This adaptor makes use of broadband pipes being deployed through digital subscriber line (DSL), fixed wireless, cable modems, and other Ethernet connections.

Additional Revenue and Features

The Cisco ATA 186 is the ideal solution for Cisco customers deploying IP telephony services in the residential/home office and small business markets. To generate additional revenue from their residential service portfolio, service providers are taking advantage of emerging telephony applications and deploying second-line services using IP-based telephones.

By utilizing their existing networks and moving to converged network architectures, service providers and small businesses alike can realize a rapid return on investment (ROI) through savings on capital costs and operational and administrative costs.

Figure 1 Cisco ATA 186—Endpoint for an end-to-end broadband system

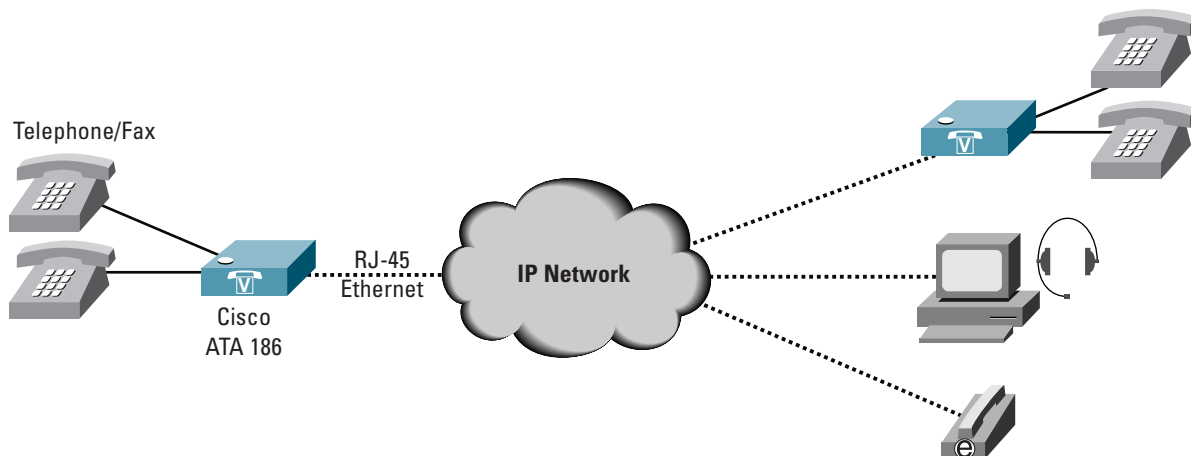


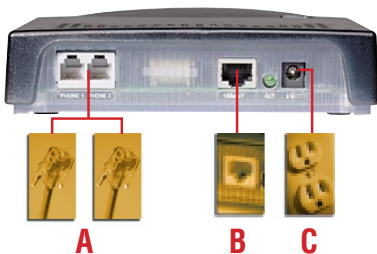


Table 1 describes the features and benefits of the Cisco ATA 186 Analog Telephone Adaptor.

Table 1 Cisco ATA 186 Features and Benefits

Benefits	Features
Interfaces legacy telephones to IP-based networks	<ul style="list-style-type: none">• Two voice ports support legacy (analog) touch-tone telephones• RJ-45 connection to 10/100Base-T Ethernet hub/switch
Flexible configuration and provisioning options	<ul style="list-style-type: none">• Auto-provisioning with Trivial File Transfer Protocol (TFTP) provisioning servers• Automatic assignment of IP address, network route IP, and subnet mask via Dynamic Host Configuration Protocol (DHCP)• Web configuration through built-in Web server• Touch-tone telephone keypad configuration with voice prompt• Administration password to protect configuration and access• Remote upgrades through network
Clear, natural-sounding voice quality	<ul style="list-style-type: none">• Advanced pre-processing to optimize full-duplex voice compression• High performance line-echo cancellation eliminates noise and echo• Voice activity detection (VAD) and comfort noise generation (CNG) save bandwidth by delivering voice, not silence• Dynamic network monitoring to reduce jitter artifacts such as a packet loss
Supports multiple protocols for interoperability and deployment flexibility	<ul style="list-style-type: none">• H.323• Session Initiation Protocol (SIP)• Media Gateway Control Protocol (MGCP)• Skinny Client Control Protocol (SCCP)—Cisco's CallManager technology
Small form-factor design	<ul style="list-style-type: none">• Fits in all environments

System Requirements:



- A** Regular analog, touch-tone telephones
- B** 10Base-T category-3 cable or better (access to an IP network)
- C** Power for AC/DC power adaptor

Software specifications for the Cisco ATA 186 are found in Table 2 below and physical specifications are found in Table 3. See Table 4 for ringing characteristics and Table 5 for regulatory compliance and safety information. Ordering information is found in Table 6.



Table 2 Cisco ATA 186 Software Specifications

Category	Specification
Voice-over-IP (VoIP) protocols	H.323 v2 H.323 v4 SIP (RFC 2543 bis) MGCP 1.0 (RFC 2705) MGCP 1.0/network-based call signaling (NCS) 1.0 Profile MGCP 0.1 SCCP
Voice coder-decoders (codecs)	G.729, G.729A, G.729AB ¹ G.723.1 G.711A G.711 μ
Provisioning and configuration	DHCP (RFC 2131) Web configuration via built-in Web server Touch-tone telephone keypad configuration with voice prompt Basic boot provisioning (RFC 1350 TFTP Profiling) Dial plan provisioning Cisco Discovery Protocol for SCCP
Security	H.235 for H.323 RC4 encryption for TFTP configuration profiles
Dual-tone multi-frequency (DTMF)	DTMF tone detection and generation
Out-of-band DTMF	H.245 out-of-band DTMF for H.323 RFC 2833 AVT tones for SIP, MGCP, SCCP
Call progress tones	Configurable for two sets of frequencies and single set of on/off cadence
Line-echo cancellation	Echo canceller for each port 8 ms echo length Nonlinear echo suppression (ERL greater than 28 dB for $f = 300$ to 3400 Hz) Convergence time = 250 ms ERLE = 10 to 20 dB Double-talk detection
Voice features	Voice activity detection (VAD) Comfort noise generation (CNG) Dynamic jitter buffer (adaptive)
Fax	G.711 fax pass-through ² G.711 fax mode ²

1. In simultaneous dual-port operation, the second port is limited to G.711 when using G.729.

2. Enhanced fax pass-through support on ATA186-I1 and ATA186-I2 adaptors only. Success of fax transmissions up to 14.4 kbps depends on network conditions and fax modem/fax machine tolerance to those conditions. Network must have reasonably low network jitter, network delay, and packet loss rate.



Table 3 Cisco ATA 186 Physical Specifications

Category	Specification
Dimensions	1.5 x 6.5 x 5.75 in. (3.8 x 16.5 x 14.6 cm) (H x W x D)
Weight	15 oz (425 gm)
Power	
Power consumption	0.25 to 7.5 W (idle to peak)
DC input voltage	+5.0 VDC at 1.5 A maximum
Power adaptor	Universal AC/DC ~ 3.3 x 2.0 x 1.3 in. (~8.5 x 5.0 x 3.2 cm) ~ 4.8 oz (135 gm) for the AC-input external power adaptor ~ 4 ft (1.2 m) DC cord ~ 6 ft (1.8 m) cord UL/CUL, CE approved Class II transformer
Physical interfaces	
Ethernet	RJ-45 8-wire connector, IEEE 802.3 10-Base-T standard
Analog telephone	Two RJ-11 FXS voice ports
Power	5 VDC power connector
Indicators	Function button with integrated status indicator Activity LED indicating network activity
Operating temperature	41 to 104°F (5 to 40°C)
Storage temperature	-4 to 140°F (-20 to 60°C)
Relative humidity	10% to 90% non-condensing, operating, and non-operating/storage



Table 4 Cisco ATA 186 Ringing Characteristics

Category	Specification
Tip/ring interfaces for each RJ-11 FXS port (SLIC)	
Ring voltage	40 V _{RMS} (typical, balanced ringing only)
Ring frequency	25 Hz
Ring waveform	Trapezoidal with 1.2 to 1.6 crest factor
Ring load	1400 ohm + 40μF
Ringer equivalence number (REN)	Up to 5 REN per RJ-11 FXS port
Loop impedance	Up to 200 ohm (plus 430 ohm maximum telephone DC resistance)
On-hook/off-hook characteristics	
On-hook voltage (tip/ring)	-50 V
Off-hook current	27 mA (nominal)
RJ-11 FXS port terminating impedance option	600 ohm resistive or 270 ohm + 750 ohm // 150 nF complex impedance

Table 5 Cisco ATA 186 Regulatory Compliance and Safety Information

Category	Specification
Regulatory standards compliance	Products bear CE marking indicating compliance with 89/336/EEC and 73/23/EEC directives, which includes below safety and EMC standards
Safety	UL 1950 CSA-C22.2 No. 950 EN 60950 IEC 60950
EMC	FCC Part 15 (CFR 47) Class B ICES-003 Class B EN55022 Class B CISPR22 Class B AS/NZS 3548 Class B VCCI Class B EN55024 EN50082-1 EN50082-2



Table 6 Ordering Information

Part Number	Description
Cisco ATA 186 analog telephone adaptors*	
ATA186-L-I1	Cisco ATA 186 with 600 ohm impedance for voice applications
ATA186-L-I2	Cisco ATA 186 with complex impedance (270 ohm in series with 750 ohm and 150 nF in parallel) for voice applications
ATA186-I1	Cisco ATA 186 with 600 ohm impedance with fax enhancement
ATA186-I2	Cisco ATA 186 with complex impedance (270 ohm in series with 750 ohm and 150 nF in parallel) with fax enhancement
Cisco ATA 186 power supply cables	
ATACAB-NA	ATA power supply cable for North America
ATACAB-EU	ATA power supply cable for Continental Europe
ATACAB-UK	ATA power supply cable for United Kingdom
ATACAB-AU	ATA power supply cable for Australia
ATACAB-AR	ATA power supply cable for Argentina

*Some countries have telephone networks that list multiple impedance requirements. It is important to closely approximate the impedance of the typical handsets used in the region when selecting the proper configuration. The incorrect choice may lead to poor echo cancellation performance.



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