VoIP Revealed

Connecting Viking products to Your Network or the Internet

Viking Model
K-1705-3

NETWORK or
INTERNET

Digital Phone

Manufacturer of a wide variety of VoIP compatible products:

- Access Control
- ADA Emergency Phones
- Alarm Dialers
- Apartment/Door/Gate Entry
- Hot Line Dialers & Phones
- Long Loop Adapters
- Paging Products
- Video Entry Phones

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Introduction to VoIP

Voice over IP: A VoIP (Voice over Internet Protocol) phone call is transmitted over a data network, such as the internet. The "Voice Over Internet Protocol" is a catch all for the protocols and technology of encoding a voice call that allows the voice call to be slotted in between data packets on a data network. Such data networks may be the public internet, a corporate intranet, or a managed network used by traditional long distance and international providers. VoIP phone calls, if properly engineered, sound just as good as a circuit switched TDM phone call - the ones we make and receive every day. There are three main benefits to VoIP phone calls:

First, they may potentially be cheaper. Since the data network is typically charged on a flat rate and thus the marginal cost of making a VoIP is zero, how much cheaper depends on: 1: The cost of terminating the VoIP call into the traditional phone network. (Figure a penny a minute.) 2: The price of a standard circuit switched TDM call. They've been getting cheaper over the years. 3: How much tax is levied on both. Taxes are horrendous on traditional circuit switched long distance calls. They aren't so big, yet, on VoIP calls, which are classified by some regulatory agencies as "information services," not voice phone calls. Therefore they escape most taxes.

Second, you may achieve the benefits of managing a voice and data network as one network. If you have IP phones, moves, adds and changes, will be easier and cheaper. IP phones are basically networked computers. They have individual addresses, with memories, and user profiles. Their software upgrades are typically centrally managed using standard computing systems. In short, they're "user friendly" to manage and can largely be managed remotely.

Third, and the key attraction of IP telephony - is added (and integrated) new services, including integrated messaging, voice emails, number portability, caller ID with name, call waiting, call forwarding, take your area code with you, plug into the internet anywhere and make free calls from anywhere in the world. And best of all, you can typically manage your phone via a website on the internet, which can provide complete call accounting. A VoIP is typically a much better animal than today's circuit switched phone.

Source: "Newton's Telecom Dictionary"

VoIP Compatible Viking Products

Model	DOD#	Use With
ACA-1A	005	FXS
ACD-10	085	FXS
AES-2000	202	FXS
AES-2005	204	FXS
BLK-3-EWP	653	FXS
C-1000B	168	FXS/FXO
C-200	169	FXO
C-2000A	156	FXO
C-3000	162	FXO
C-4000	164	FXS
CPA-7B	455	FXS/FXO
CPC-1	442	FXS
DNA-510	492	FXS/FXO
DVA-1003B	125	FXS (3)
DVA-3003	127	FXS (3)
DVA-500A	115	FXS
DVA-LPA	128	FXS
DVA-TNT	129	FXS
E-10A, 20B	210	FXS
1600A Series	215	FXS
E-30	212	FXS
E-30-PT	214	FXS
E-35	178	FXS
E-40 Series	187	FXS
E-50 Series	191	FXS
EV-1	135	FXS
FAXJ-1000	261	FXS
FBI-1A	465	FXO
HF-3W	470	FXO
K-1200	182	FXS
K-1205	183	FXS
K-1500-6A	352	FXS
K-1500-E	220	FXS
K-1500-EHFA	220	FXS
K-1500P-D/ASH	355	FXS
K-1500P-W/ASH	355	FXS
K-1500-7	352	FXS
K-1700-3	157	FXS
K-1705-3	159	FXS
K-1900 Series	360	FXS

Model	DOD#	Use With
K-1900-3	312	FXS
K-1900-4	315	FXS
K-1900-5	317	FXS
K-1900-7	364	FXS
K-1900-8	362	FXS
K-1900-9	321	FXS
K-202-DVA	305	FXS
K-2000-DVA	303	FXS
K-600D	475	FXS
LC-8	225	FXS
LDB-1	406	FXS
LDB-2	408	FXS
LDB-3	409	FXS
LLA-1	615	FXS
LLA-4	620	FXS
LS-4X4	270	FXS
LSD-2	262	FXS
LSR-1	230	FXS
PA-2A	485	FXO/FXS*
PA-30	489	FXO/FXS*
PB-100	232	FXS
PF-6A	680	FXS (6)
PI-1	490	FXO/FXS*
RAD-1A	410	FXS (2)
RAD-AMP	415	FXS (2)
RC-2A	160	FXS
RC-3	165	FXS/FXO
RG-10A	420	FXS
SR-1	477	FXS
TBB-1A	630	FXS
TMS-2	062	FXS (2)
TMS-6X	065	FXS (6)
TMS-12A	070	FXS (12)
TR-1	705	FXS
VR-1A	695	FXS
W-1000	170	FXO
W-2000A	170	FXO
W-3000	180	FXO
W-3005	181	FXO
ZPI-4	499	FXS/FXO

*** Note:** *Loud ring only- paging requires a* **RAD-1A.**
(#) Note: *# of ports.*

Glossary of Terms

ATA: Analog Telephone Adapter. A device that acts as a bridge between an analog telephone and a network, making VoIP possible. ATA's have an RJ-11 jack for connection to the telephone or other analog device and an RJ-45 jack for connection to the network.

DHCP: Dynamic Host Configuration Protocol. This is the set of rules by which a network server automatically assigns an IP Address to a Host. Additional details of the configuration, including Subnet Mask and Default Gateway are relayed to the host as well.

DNS Server: A DNS (Domain Name System) server converts a domain name (vikingelectronics.com) into an IP address.

Default Gateway: A device that routes network traffic between different Subnets or networks. This is one of the pieces of information needed to manually set an IP Address.

Dynamic IP Address: An address supplied by a DHCP Server. This type of address is assigned a Lease which can expire if the address is not used within the period of the lease.

Ethernet: Ihe most commonly used LAN technology. An ethernet Local Area Network typically uses coaxial cable or twisted pair wires to achieve transmission speeds up to 1Gb or more.

FXO: An FXO port acts like an analog trunk port. It receives talk battery and ring voltage, and provides on hook/off hook indication. It could have an analog phone line plugged into it, or a Viking product that is designed to be connected to a spare analog trunk port.

FXS: An FXS port is like a station port on an analog phone system. It provides talk battery, dial tone, and ring voltage. Analog telephone equipment like phones and fax machines can be plugged into an FXS port.

Hardware Address: See MAC Address

Host: A computer or device connected to a network.

Internet: A worldwide system of computer networks running on the IP protocol which can be accessed by individual computers or networks.

IP: Internet Protocol is the set of communications conventions that govern the way computers communicate on networks and on the Internet.

IP Address: This is the address that uniquely identifies a Host (computer or device) on a network.

LAN: Local Area Network. A LAN is a network connecting computers and other devices within an office or building.

Lease: The amount of time a DHCP Server reserves an address it has assigned. If the address isn't used by the Host for a period of time, the lease can expire and the address can be assigned to another host.

MAC Address: MAC stands for Media Access Control. A MAC address, also called a Hardware Address or Physical Address, is a unique address assigned to a device at the factory. It resides in the device's memory and is often printed on the outside of the device. It is used by Routers to send network traffic to the correct IP Address. Example: 00-0B-82-12-0C-48

Network Administrator: The person responsible for setting up and maintaining a network. The network administrator's job includes making sure that space is available on the file server, that the file server is backed up regularly, that new employees can access the network, troubleshooting network problems, and other tasks.

Physical Address: See MAC Address

Router: A device that forwards data from one network to another. In order to send information to the right location, routers look at IP Addresses, MAC Addresses, and Subnet Masks.

SIP: Session Initiation Protocol. An IP telephony signaling protocol primarily used for VoIP calls but which can also be used for video or any media type. SIP establishes sessions using these technologies and deploys them over IP networks, enabling service providers to integrate basic IP telephony services with internet, email and chat services. SIP servers also support traditional telephony features like call forwarding.

Static IP Address: A static IP Address is assigned manually and is permanent until it is manually removed. It is not subject to the lease limitations of a Dynamic IP Address assigned by the DHCP Server.

Subnet Mask: A type of address filter used by Routers to send data to the correct location. This is one of the pieces of information needed to manually set an IP Address. It also signifies the number of IP addresses and the scope available.

VoIP Gateway: This is a generic term that covers a variety of devices, all of which at some point act as digital-to-analog converters. The essential function of a VoIP gateway is to convert an analog voice signal to digital information so it can be sent out on a network, making VoIP possible. This conversion function is often built into other devices like routers or cable/DSL modems. If the gateway's only function is to convert digital to analog and vice versa, it is called an ATA.

WAN: Wide Area Network. A WAN is a network comprising a large geographical area like a state or country. The largest WAN is the Internet.

Compatible Gateway Equipment

MODEL ATA-100

Viking model ATA-100 allows the user to connect many Viking products to your LAN, WAN or the internet. Designed for voice communication between an analog telephone device and an IP PBX, voice paging or VoIP internet calling. The ATA-100 can be used with or without SIP registration. If unregistered, the ATA-100 can perform basic tasks like sending voice data across a network. SIP registration (not included) opens up an impressive list of calling features and also enables internet calling. In addition, the ATA-100 has an RJ-11 port for switching to the PSTN analog phone network via touch tone commands.

For more information, go to www.vikingelectronics.com and request DOD# 234.

VONAGE

Vonage provides a VoIP ATA that can connect Viking products (those that require an FXS port) via your internet provider. Residential plans begin at $14.99 a month and business plans start at $39.99 a month.

DTMF Viking products that dial out, as well as those that can be programmed remotely are also compatible.

For more information, go to www.vonage.com

AXIS (Video and Voice)

Axis manufactures video servers that encode analog video and audio signal for transmission across an IP network or the internet. The single-channel model 247S is shown. Supplied software allows you to access Axis units connected to the network (auto-discovery) and program them via a web page interface. The video and audio can then be monitored from any location on the network.

For more information, go to www.axis.com

Getting Started

CONNECTING TO A LAN, WAN OR IP PBX (VOICE ONLY)

Step 1: Contact your network administrator and inform them that you would like to install an ATA. Ask them to supply you with a static IP address. Example: Viking model ATA-100 shown on page 6.

Step 2: Follow the directions included with the gateway (ATA) equipment.

CONNECTING TO THE INTERNET (VOICE ONLY)

Step 1: Contact your local provider (such as Vonage) and order a calling plan (you must have a broadband internet connection). Example: Vonage shown on page 6.

Step 2: Follow the directions included with the gateway (ATA) equipment.

CONNECTING TO A NETWORK (VIDEO AND VOICE)

Step 1: Contact your network administrator and inform them that you would like to install a video camera on the network. Ask them to supply you with a static IP address. Example: Axis video server shown on page 6.

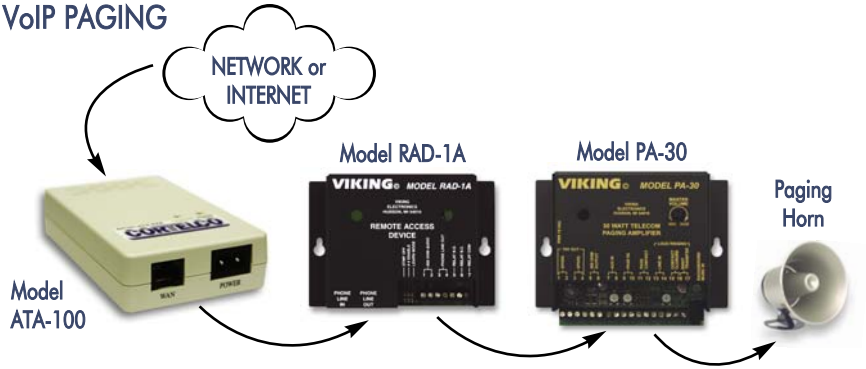
Step 2: Follow the directions included with the video server equipment.

Note: If the video server receives its power from PoE (Power over Ethernet) and your network does not support PoE, it will be necessary to purchase a PoE power injector to power the server.

Step 3: Connecting to the internet (optional). Once the video server is connected, it can be monitored from anywhere on the local area network (LAN). To access the video from the internet, network routers must be configured to allow incoming traffic, which is usually done on a specific port. Please refer to the documentation for your router for further instructions (this will likely require the assistance of your network administrator).

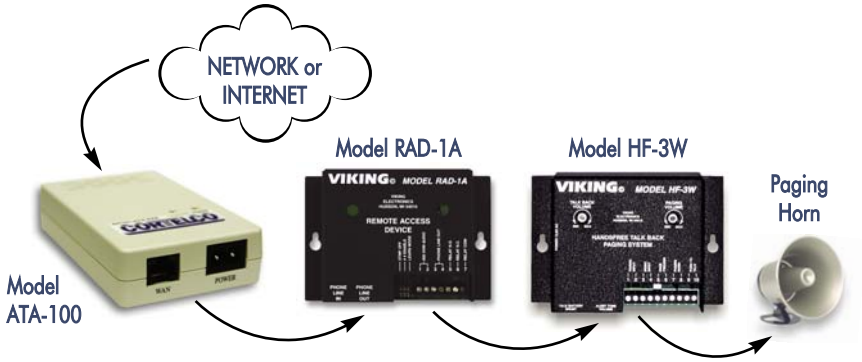
Other Applications

VoIP PAGING



In this example the ATA-100 converts network packets back to an analog paging signal which is amplified by the PA-30 Paging Amplifier. Note that if the paging system is analog, it is necessary to encode the audio paging signal using another ATA-100 before sending it out over the network.

VoIP HANDSFREE TALKBACK PAGING



Since the HF-3W is a talkback paging amplifier, the ATA-100 in this case both converts network data to analog paging signal and encodes the talkback signal to data packets that can be sent over the network. If the paging system is analog, another ATA-100 is needed to perform encoding/decoding functions at the originating end.