Cisco VG 224, VG 204 and VG 202 Analog Phone Gateways

The Cisco® VG 224, Cisco® VG 204 and Cisco® VG 202 Analog Phone Gateways enable an IP telephony solution to continue using traditional analog devices while taking advantage of the productivity afforded by IP infrastructure.

The Cisco Unified Communications system of voice and IP communications products and applications enables organizations to communicate more effectively—helping them to streamline business processes, reach the right resource the first time, and impact the top and bottom line. The Cisco Unified Communications portfolio is a key part of the Cisco Business Communications Solution—an integrated solution for organizations of all sizes which also includes network infrastructure, security, and network management products, wireless connectivity, and a lifecycle services approach, along with flexible deployment and outsourced management options, end-user and partner financing packages, and third-party communications applications.

Figure 1. Cisco VG 224 Analog Phone Gateway

Figure 2. Cisco VG 204 Analog Phone Gateway

Figure 3. Cisco VG 202 Analog Phone Gateway

The Cisco VG 224 (Figure 1), Cisco VG 204 (Figure 2), and Cisco VG 202 (Figure 3) are Cisco IOS® Software-based analog phone gateways. The Cisco VG224 is a high-density 24-port gateway, and the Cisco VG 204 and Cisco VG 202 are low-density 4 and 2 port gateways, respectively. These gateways connect analog phones, fax machines, modems, and speakerphones to an enterprise voice system based on Cisco Unified Communications Manager. Having these devices tightly integrated with the IP-based phone system is advantageous for increased manageability, scalability, and cost-effectiveness (Figure 4). Commercial businesses can also use the Cisco VG 224, Cisco VG 204 and Cisco VG 202 with Cisco Unified Communications Manager Express to effectively augment an integrated services router (ISR) environment. Either topology environment will support business needs, ranging from high to low concentration of analog voice ports for modem calls, fax calls, and analog supplementary services (Figure 4).

The Cisco VG 224, Cisco VG 204 and Cisco VG 202 offer Cisco IOS Software manageability on analog phone lines to enable them to be used as extensions to the Cisco Unified Communications Manager or Cisco Unified Communications Manager Express system. The Cisco VG 224 offers a very compact 19-inch rack-mount chassis, while the Cisco VG204 and Cisco VG202 offer desktop form factor chasses with fanless design.

Features and Benefits

- **Cisco IOS Software-Based Hardware:** The hardware includes uniform Cisco command-line interface (CLI) and Simple Network Management Protocol version 3 (SNMPv3) support for ease of gateway configuration and operation.
- **Robust Voice Quality:** Cisco experience in providing toll-quality packet-voice service helps ensure that the Cisco VG 224, Cisco VG204 and Cisco VG 202 provide the clear, robust voice quality end users have come to expect from telephony services.
- **Investment Protection:** Customers can continue to use existing analog phones, fax machines, and modems while taking advantage of IP telephony. Basic analog phone connectivity is needed when the infrastructure (wiring) or application does not support or require IP phones. The Cisco VG 224 is the ideal platform to support centralized analog phone line deployments, while Cisco VG 204 and Cisco VG 202 are ideal platforms to support sparsely concentrated, distributed analog phone deployments, allowing organizations to deploy IP telephony without having to purchase IP phones for all users and to continue using existing devices. Cisco VG 224 can also be used in a Cisco Unified Communications Manager Express environment and migrated to Cisco Unified Communications Manager deployment with 100 percent investment protection.
- **High Availability:** Customers will experience less voice downtime due to WAN link failure. Cisco VG 224, Cisco VG 204 and Cisco VG 202 have built-in Media Gateway Control Protocol (MGCP) failover to an H.323 connection to a Survivable Remote Site Telephony (SRST) router. This failover will maintain voice service for analog endpoints in the event of WAN link failure and lost connectivity to the Cisco Unified Communications Manager.

  Cisco VG 224 offers additional high-availability during power failure using an external 12V DC UPS for battery backup.
- **Reduced Barrier to Entry:** These analog phone gateways provide a low-cost alternative for low-end analog phones and allows organizations to take advantage of IP telephony with a lower overall IP telephony investment.

Figure 4. Cisco VG Integration with Cisco Unified Communications Manager

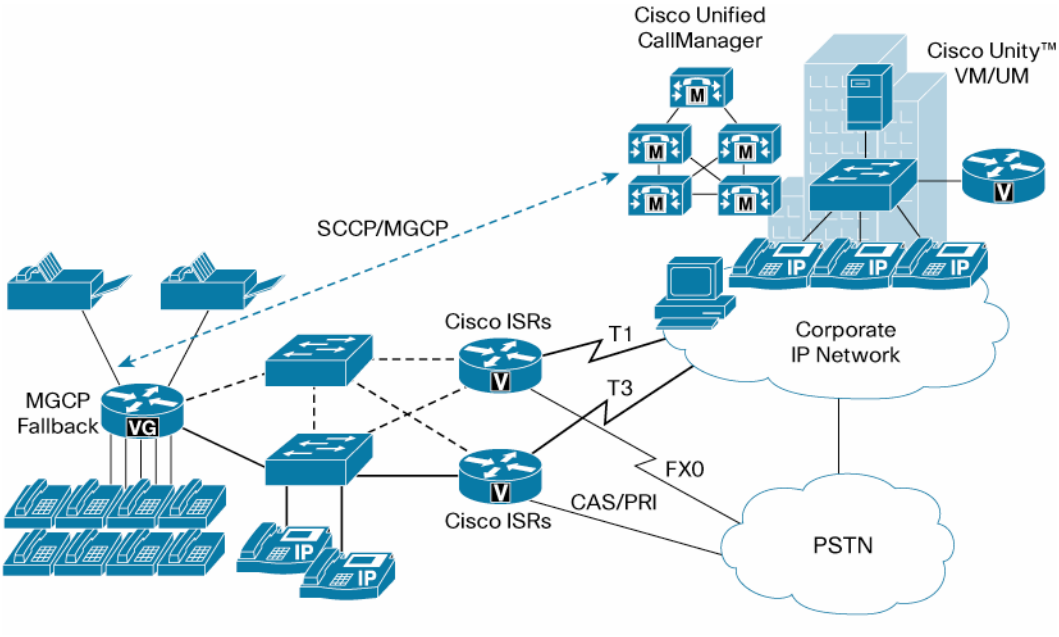
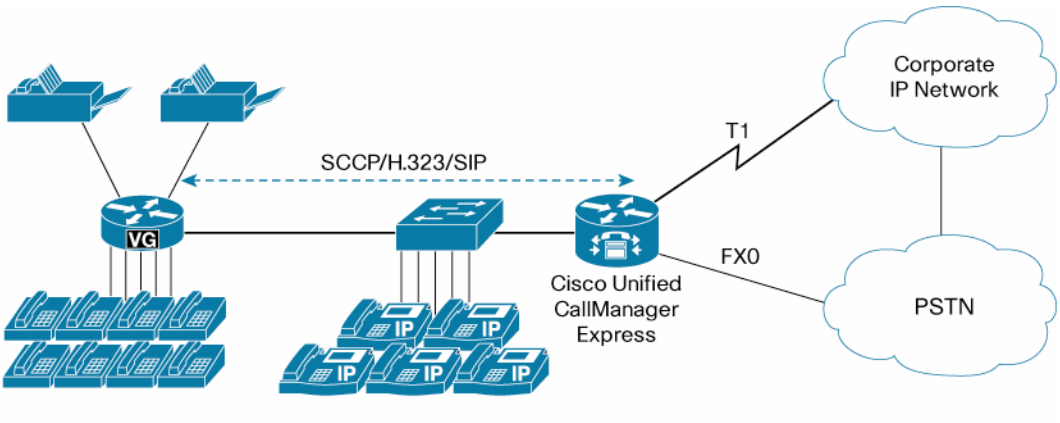


Figure 5. Cisco VG Integration with Cisco Unified Communications Manager Express



Analog Phone Connectivity

The Cisco VG 224, Cisco VG 204 and Cisco VG 202 are ideal for analog phone deployments ranging from centralized to sparsely concentrated or distributed topologies. These analog phone gateways provide a high level of availability at locations with MGCP Fallback, with ease of manageability using Cisco IOS Software monitoring features. They offer many supplementary analog calling features depending on the call control and signaling type used. Refer to Table 1 for the supplementary analog calling features available.

Table 1. Analog Supplementary Features available on Cisco VG224

	SCCP Features With Cisco Unified Communications Manager	SCCP Features With Cisco Unified Communications Manager Express	SIP Features With Cisco Unified Communications Manager
Basic Call	X	X	X
Call Forward All	X	X	
Call Forward Busy	X	X	
Call Forward Cancel	X	X	
Call Forward No Answer	X	X	
Call Hold / Resume	X	X	X
Call Pickup Group	X	X	
Call Pickup Local	X	X	
Call Transfer Blind	X	X	
Call Transfer Consultative	X	X	X
Call Waiting	X	X	X
Caller ID	X	X	X
Caller ID on Call Waiting	X	X	X
Malicious Caller ID	X		
Conference Call	Up to 3 parties	Up to 3 parties	Up to 3 parties
Ad Hoc Conference Call	Up to 3 parties	Up to 3 parties	
Meet Me Conference Call	X	X	
Directed Call Park		X	
Directed Call Pickup		X	
Directed Call Pickup of Ringing Extension		X	
Redial	X	X	
Speed Dial	X	X	
Call Toggle	X	X	X
Music on Hold	X		
Shared Line Support*	X		
Shared Line—Privacy	X		
Precedence and Preemption	X		
Call Back on Busy	X		
DC voltage VMWI	X (only for FXS on VG224)		

*Simultaneous ringing, hold and resume across analog and IP phone

Cisco VG 224, Cisco VG 204 and Cisco VG 202 support Feature Access Codes in conjunction with Cisco Unified Communications Manager and Cisco Unified Communications Manager Express. Refer to Cisco Unified Communications Manager and Cisco Unified Communications Manager Express documentation for details.

Fax and Modem Connectivity

The Cisco VG 224, Cisco VG 204 and Cisco VG 202 support fax machines and modems. When using fax machines, they support Cisco fax relay, T.38 fax relay, and fax passthrough. Cisco or T.38 fax relay technologies allow transfer of faxes across the network with high reliability using less bandwidth than a voice call. All modems can be connected to the Cisco VG 224, Cisco VG 204 and Cisco VG 202 and will be transferred over the network using modem passthrough.

Protocols Supported

- SCCP
- H.323v4
- MGCP
- SIP
- Real-Time Transport Protocol (RTP)
- Secure Real-Time Transport Protocol (SRTP)
- Trivial File Transfer Protocol (TFTP)
- HTTP server
- SNMP
- Telnet
- Dynamic Host Configuration Protocol (DHCP)
- Domain Name System (DNS)
- Cisco Unified Communications Manager 3.3.3 SR2 or higher version
- Cisco Unified Communications Manager Express 4.3.2 or higher version
- Cisco Unified Communications Manager or Cisco Unified Communications Manager Express redundancy support using Hot Standby Router Protocol (HSRP)
- Call survivability—MGCP failover to an H.323 connection to the SRST router
- Cisco fax relay, T.38 fax relay, and modem pass-through
- Coder/decoder (codec) support, G.711, G.729a
- RADIUS and TACACS+ for Telnet and authorization

Technical Specifications

Table 2. Technical Specifications

Category	VG 224	VG 204 / VG 202
System		
Processor	RISC processor	Power QUICC (Power PC based) processor
Memory (default)	128 MB SDRAM	128 MB DDR2 RAM
Compact Flash	64 MB, One slot Type II	128 MB NAND Flash
Ethernet	Two 10/100BASE-T Ethernet ports	Two 10/100BASE-T Ethernet ports
Console/auxiliary (max)	Up to 119.2 kbps per port	Up to 115.2 kbps per port
Power		
AC Input Voltage	100 to 240 VAC	100 to 240 VAC
AC Input Current (max)	1 Amp	0.5 Amp
DC Input Voltage	12V	12V

Category	VG 224	VG 204 / VG 202
Frequency	50 to 60 Hz	50 to 60 Hz
Power Dissipation	60W	30W
Physical		
Width	17.5 inches (444.5 mm)	8.81 inches (223.8 mm)
Height	1.75 inches (44.4 mm) (add 0.17 inch for optional rubber feet)	1.78 inches (45.2 mm) with rubber feet
Depth	13.5 inches (342.9 mm)	8.13 inches (206.5 mm)
Weight (max)	11 lb (4.106 kg)	2.98 lbs (1.351 Kg)
Mounting	Rack and wall mountable	Desktop and wall mountable
Environment		
Operating Temperature	32 to 122ºF (0 to 50ºC)	32°to 104℉ (0°to 40℃)
Non-operating Temperature	–40 to 185ºF (–40 to 85ºC)	4°to 149℉ (–20°to 65℃)
Operating Humidity	5 to 95% non-condensing	10 to 85% non-condensing
Noise Level (max)	38-dbA @ 3 feet (0.914 meters)	No fan, 0 db
On-Premise or Off-Premise	On premise only, restricted access area, permanent ground required, to be installed and serviced only by trained professionals	On premise only, permanent ground required, to be installed and serviced only by trained professionals
Tip / Ring Interfaces for Each FXS Port (SLIC)		
Interface Type	FXS (on-premise connection only)	FXS (on-premise connection only)
Cisco IOS Software Release	12.3(4)T or later12.4(22)T or later	
Address Signaling Formats	In-band DTMF Out-of-band pulse (8-12 pps)	In-band DTMF Out-of-band pulse (8-12 pps)
FXS Signaling Formats	Loop-start and Ground-start	Loop-start and Ground-start
FXS Loop Resistance	Up to 600 ohm (including the phone or terminal equipment)	Up to 600 ohm (including the phone or terminal equipment)
On-Hook Voltage	–43 V	–43 V
Off-Hook Loop Current	25 mA (maximum)	25 mA (maximum)
Ring Tone	Configurable for different country requirements	Configurable for different country requirements
Ring Voltage	50Vrms into 5 REN at zero loop length (balanced) if no DC offset	54Vrms into 5 REN at zero loop length (balanced) if no DC offset
Ring Frequency	20, 25, 30, 50 Hz	20, 25, 30, 50 Hz
Ring Waveform	Sine wave if no DC offset 20V and 24V DC offset will be trapezoidal	Sine wave up to 35V DC offset
Ring Load	5REN with no DC offset 2REN with DC offset	5REN with no DC offset 2REN with DC offset
REN Loading	5 REN/port, 12 REN/system (maximum)	5 REN/port, 12 REN/system (maximum)
RJ-11 FXS Port Terminating Impedance Option	600 ohm complex, 600 ohm real, 900 ohm complex, 900 ohm real, complex1, and complex2	600 ohm complex, 600 ohm real, 900 ohm complex, 900 ohm real, complex1, and complex2
Disconnect Supervision	Power denial (Calling Party Control, far-end disconnect)	Power denial (Calling Party Control, far-end disconnect)
Caller ID	On-hook Transmission of Frequency-Shift-Keying Data	On-hook Transmission of Frequency-Shift-Keying Data
Loop Length	3000 ft, 26 AWG	3000 ft, 26 AWG
Category Cable	Cat3, Cat5	Cat3, Cat5
Physical Connector	RJ-21	RJ-11
Number of Connectors/Ports	24 FXS ports	2 FXS ports on VG 202 4 FXS ports on VG 204
MTBF	195,671 hours	200,000 hours
Certifications		

Category	VG 224	VG 204 / VG 202
Safety	• UL 60950 3rd edition • IEC 60950 3rd edition • AS/NZS 3260: 1993 with Amendments 1, 2, 3, and 4 • TS001:1996 with Amendment 1	• UL 60950 • CAN/CSA C22.2 No. 60950 • IEC 60950 • EN 60950-1 • AS/NZS 60950
Immunity	• EN55024 and EN50082-1 (including • EN 61000 4-2 electrostatic discharge; • EN 61000 4-3 radiated susceptibility; • EN 61000 4-4 electrical fast transients; • EN 61000 4-5 power and signal line surges; • EN 61000 4-6 injected RF swept immunity) post telephone and telegraph administration (PTT)	• EN300386 • EN55024/CISPR24 • EN50082-1 • EN61000-6-1
EMC	• 47CFR15 Class A (FCC) • CISPR22 Class A • EN55022 Class A • AS/NZS 3548 Class A (ACA) • ICES003 Class A (Industry Canada) • V-3 Class A (VCCI) • CNS13438 Class A (BSMI)	• FCC Part 15 Class B • ICES-003 Class B • EN55022 Class B • CISPR22 Class B • VCCI Class B • EN 300386 Class B • EN61000-3-3 • EN61000-3-2
TELCOM	• TheVG224 platform complies with FCC Part 68, CS-03, European Directive 99/5/EC and other standards. • Homologation requirements vary by country and interface type. For specific country information, see the on-line approvals data base: http://www.ciscofax.com	• TheVG202 and VG204 platforms comply with FCC Part 68, CS-03, European Directive 99/5/EC and other standards. • Homologation requirements vary by country and interface type. For specific country information, see the on-line approvals data base: http://www.ciscofax.com

This equipment complies with all the regulatory requirements for connection to the communications networks of each country in which it is sold.

Ordering Information

To order this product, use the following information:

Product Number	Product Description
VG 224	Cisco VG 224 Analog Phone Gateway
VG 204	Cisco VG 204 Analog Phone Gateway
VG 202	Cisco VG 202 Analog Phone Gateway

Services and Support

Using the Cisco Lifecycle Services approach, Cisco Systems® and its partners offer a broad portfolio of end-to-end services. These services are based on proven methodologies for deploying, operating, and optimizing IP Communications solutions. Upfront planning and design services, for example, can help you meet aggressive deployment schedules and minimize network disruption during implementation. Operate services reduce the risk of communications downtime with expert technical support. Optimize services enhance solution performance for operational excellence. Cisco and its partners offer a system-level service and support approach that can help you create and maintain a resilient, converged network that meets your business needs.

Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV
Amsterdam, The Netherlands

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at www.cisco.com/go/offices.

Printed in USA C78-504690-00 10/08