

ShoreGear IP Voice Switches



Enabling business-critical
Unified Communications
with high performance
and high reliability



BENEFITS

- *Highly scalable switch solutions to meet the needs of enterprises, and small and medium businesses*
- *99.999% system availability exceeds stringent enterprise standards*
- *Ability to span multiple locations with one enterprise IP telephony system*
- *Delivers Pure IP voice communications of exceptional quality*
- *Dramatically lower installation and ownership costs*
- *RoHS/WEEE compliant*

ShoreTel® ShoreGear® IP Voice Switches deliver Unified Communications to organizations of every size – from large enterprises to small and medium businesses. Highly reliable and intelligent, these ShoreGear devices unify communications across multiple enterprise locations, supporting both IP phones and analog devices.

Eliminate communication boundaries

ShoreTel delivers breakthrough Unified Communications solutions with a single system spanning multiple locations, which dramatically simplifies employee communication and boosts customer satisfaction. Significant productivity gains can be realized, as employees spend less time interacting with the voice system and more time communicating with each other. ShoreTel's Pure IP telephony solutions enable effortless communication with flexible dialing across the enterprise, and seamless transfer, conference, pick up, park and intercom between sites. Designed for growing businesses, ShoreGear allows employee extensions to be easily moved, added or changed.

ShoreTel Pure IP communications also reduce productivity-draining "phone tag" with the Office Anywhere feature that lets users assign their extensions to any internal or external telephone. Productivity rises and customer satisfaction increases as calling parties connect with the right people, faster.

Business-critical reliability

Voice communications are the foundation of any business, demanding the utmost in system availability. ShoreGear IP voice switches exceed today's most stringent enterprise IT requirements, delivering 99.999% reliability. For maximum availability, the processors that power ShoreGear IP voice switches do not require or use mechanical disk drives, eliminating the single most common point of system failure. ShoreGear IP voice switches use an embedded, real-time operating system and unique call control architecture, enabling them to communicate with each other and distribute call processing in the

network. Unlike other providers' solutions, servers can be disconnected from the ShoreTel IP telephony system and the switches will continue to place and receive calls.

If a ShoreGear IP voice switch supporting IP phones fails or is isolated by a network fault, the phones will automatically failover to another voice switch at the site providing complete redundancy. Second-, third- and fourth- level redundancy can be configured by simply adding additional voice switches. This "N + 1" form of redundancy is simple, cost effective and incredibly reliable.

Smooth migration and seamless scalability

With ten stackable, space-efficient designs, ShoreTel offers a wide range of solutions for organizations of any size. Growing companies simply need to add ShoreGear IP voice switches; the system scales geometrically and seamlessly. Enterprises can also migrate to IP telephony over time using the ShoreGear Primary Rate Interface (PRI) options to provide tandem trunking and coordinated dialing with existing PBXs.

Lower total cost of ownership

ShoreTel's exceptional ease of installation, ease of use and centralized management significantly lower ongoing maintenance and operating expenditures. New ports and users can be added by simply connecting switches to the network. ShoreWare® Director management software automatically discovers new switches and adds them to the ShoreTel IP telephony system. Designed for power efficiency and minimum power consumption, ShoreGear IP voice switches also help lower energy costs and further corporate green initiatives.

Exceptional voice quality

In independent rankings*, ShoreTel consistently earns top marks for superior IP telephony call quality. ShoreTel's technology leadership in dynamic echo cancellation, jitter buffering and lost packet handling result in low latency and toll-quality voice communications.

*"Building the Successful Virtual Workplace: VoIP Review: Products, Services, Architecture" Nemertes Research, March 2007.



MODEL	ShoreGear 120	ShoreGear 90	ShoreGear 90BRI†	ShoreGear 50	ShoreGear 30	ShoreGear 24A
Telephones						
IP phones	120	90	90	50	30	–
Analog phones	24	4	4	2	2	24
Analog Ports						
Universal	8	–	–	–	–	–
Trunk-only (loop start)	–	8	–	4	2	–
Telephone-only	16	4	4	2	2	24
Digital Trunks						
Digital trunk channels			8 BRI Channels			
Integrated CSU						
Line and payload loop backs						
Facilities data link						
System						
Port capacity	10,000 ports	10,000 ports	10,000 ports	10,000 ports	10,000 ports	10,000 ports
Switch capacity	500 switches	500 switches	500 switches	500 switches	500 switches	500 switches
Front Panel						
10M/100M Ethernet (RJ-45)	2	2	2	2	2	2
Analog	RJ-21X	RJ-21X		RJ-21X	RJ-21X	RJ-21X
Audio input and output (mini)	•	•	•	•	•	•
T1 / E1 (RJ-48C)						
T1 / E1 monitor (RJ-48C)						
Maintenance (DB-9)	•	•	•	•	•	•
Mechanical						
19" rack mount	•	•	•	•	•	•
Dimensions	17.16x1.72x14.28 in. 43.6x4.4x36.3 cm	8.39x1.69x14.88 in. 21.3x4.3x37.8 cm	8.39x1.69x14.88 in. 21.3x4.3x37.8 cm	8.39x1.69x14.88 in. 21.3x4.3x37.8 cm	8.39x1.69x14.88 in. 21.3x4.3x37.8 cm	17.16x1.72x14.28 in. 43.6x4.4x36.3 cm
Weight	9 lb / 4.1 kg	5.3 lb / 2.4 kg	5.3 lb / 2.4 kg	5.3 lb / 2.4 kg	5.3 lb / 2.4 kg	9 lb / 4.1 kg
Power						
Input voltage, frequency	100-240 VAC, 50-60 Hz	100-240 VAC, 50-60 Hz	100-240 VAC, 50-60 Hz	100-240 VAC, 50-60 Hz	100-240 VAC, 50-60 Hz	100-240 VAC, 50-60 Hz
Input current	2A max.	1A max.	1A max.	1A max.	1A max.	2A max.
Consumption / Dissipation	63 W max.	31 W max.	23 W max.	23 W max.	23 W max.	63 W max.
Environmental						
Operating temperature	0° to 50° C	0° to 50° C	0° to 50° C	0° to 50° C	0° to 50° C	0° to 50° C
Operating humidity	0-90% non-condensing	0-90% non-condensing	0-90% non-condensing	0-90% non-condensing	0-90% non-condensing	0-90% non-condensing
Storage temperature	-30° to 70° C	-30° to 70° C	-30° to 70° C	-30° to 70° C	-30° to 70° C	-30° to 70° C

† Availability varies based on geography. Please contact your local ShoreTel Representative for availability information.



ShoreGear Voice Switches Features:

ShoreGear T1k	ShoreGear 220T1	ShoreGear 220T1A	ShoreGear E1	ShoreGear 220E1
	220	220		220
		4		
-	-	-	-	-
-	-	2	-	-
-	-	4	-	-
24/23B+D	24/23B+D	24/23B+D	30B+D+F	30B+D+F
•	•	•	•	•
•	•	•	•	•
•	•	•	•	•
10,000 ports	10,000 ports	10,000 ports	10,000 ports	10,000 ports
500 switches	500 switches	500 switches	500 switches	500 switches
2	2	2	2	2
		RJ-21X		
•	•	•		•
•	•	•	•	•
•	•	•	•	•
•	•	•	•	•
•	•	•	•	•
8.39 x 1.69 x 14.88 in. 21.3 x 4.3 x 37.8 cm	8.39 x 1.69 x 14.88 in. 21.3 x 4.3 x 37.8 cm	8.39 x 1.69 x 14.88 in. 21.3 x 4.3 x 37.8 cm	17.16 x 1.72 x 14.28 in. 43.6 x 4.4 x 36.3 cm	8.39 x 1.69 x 14.88 in. 21.3 x 4.3 x 37.8 cm
5.3 lb / 2.4 kg	5.3 lb / 2.4 kg	5.3 lb / 2.4 kg	8 lb / 3.6 kg	5.3 lb / 2.4 kg
100-240 VAC, 50-60 Hz	100-240 VAC, 50-60 Hz	100-240 VAC, 50-60 Hz	100-240 VAC, 50-60 Hz	100-240 VAC, 50-60 Hz
1A max.	1A max.	1A max.	1A max.	1A max.
18 W max.	18 W max.	29 W max.	19 W max.	18 W max.
0° to 50° C	0° to 50° C	0° to 50° C	0° to 50° C	0° to 50° C
0-90% non-condensing	0-90% non-condensing	0-90% non-condensing	0-90% non-condensing	0-90% non-condensing
-30° to 70° C	-30° to 70° C	-30° to 70° C	-30° to 70° C	-30° to 70° C-30

Note: Caller ID and Message Waiting on analog ports use FSK signalling.

Telephone Features

Call barge in
 Call conference (6-party)
 Call forward, busy
 Call forward, external
 Call forward, no answer
 Call hold
 Call join
 Call park/unpark
 Call pickup
 Call recording
 Call stack (1-16 calls)
 Call redirect
 Call transfer, blind
 Call transfer, consultative
 Call transfer, intercom
 Call transfer, mailbox
 Call waiting
 Caller ID name
 Caller ID number
 Caller ID blocking
 Directory dialing
 Distinctive dial tone
 E911
 Group paging
 Handsfree
 Hot key pad
 InstaDial
 Intercom
 Night bell
 Message waiting
 Missed call
 Multiple line appearance
 Music-on-hold
 Operator ("0")
 On hold reminder ring
 Office Anywhere
 Outbound caller ID
 Paging
 Redial
 Ring tone selection
 Ring Down
 Speed dial
 Silent monitoring
 Voicemail ("##")
 Whisper page

Trunk types

Analog loop start
 Analog wink start
 T1 loop start
 T1 wink start
 T1 PRI
 • NI2
 • 4ESS
 • 5ESS
 • DMS 100
 • Hong Kong Variant
 • QSIG Basic Call
 E1 PRI
 • EURO-ISDN
 • New Zealand Telecom
 • QSIG Basic Call
 SIP
 • RFC 3261 - SIP
 • RFC 2976 - SIP INFO
 • RFC 3891 - SIP Replace
 • RFC 3515 - SIP Refer
 • RFC 2396 - URI
 • RFC 2388 - DTMF

Trunk Features

ANI
 Automatic trunk maintenance
 Caller ID name
 Caller ID number
 Centrex flash
 Dial-in prefix
 Dial-out prefix
 DID
 Digit translation
 DNIS
 Network call routing
 Network/User side PRI
 Off-system extensions
 Tandem trunking
 Trunk groups

IP phone support

MGCP
 SIP
 VLAN (DHCP)
 ToS/Diff Derv
 UDP 5004 (patent pending)

DSP features

Dynamic echo cancellation
 Dynamic jitter buffer
 Lost packet handling
 Voice compression
 • Linear
 • G.711
 • ADPCM
 • G.722
 • G.729a
 • BV-16
 • BV-32

System features

Account codes
 Admission control
 Backup auto-attendant
 Bridge call appearance
 Call permissions
 Extension length (3-5 digits)
 Fax redirection
 Feature permissions
 IP phone failover
 Media encryption
 Office Anywhere
 On-net dialing (1-7 digits)
 Power fail transfer
 PSTN failover
 SMDI
 SNMP

Hunt groups

Simultaneous hunt
 Top down hunt
 Single or multiple calls per extension
 Busy out group
 Busy out extension
 16 extensions max. per switch
 8 groups max. per switch
 Call forward busy
 Call forward no answer
 Scheduled modes

Choices to meet every need

Providing a full range of solutions that are ideal for headquarters, regional and branch offices and small and medium businesses, ShoreTel offers:

- **ShoreGear 120**
- **ShoreGear 90**
- **ShoreGear 50**
- **ShoreGear 30**

These switches support up to 120, 90, 50 and 30 IP telephones or combinations of analog devices. A power-fail transfer port on all switches ensures dial tone during power outages.

High-density analog option

The ShoreGear 24A (analog) for high-density analog phone environments is a perfect complement to other ShoreGear switches. ShoreGear 24A provides 24 analog extension ports at sites that require a high analog handset density. Trunks and IP phones are not supported.

Digital trunk options

The ShoreGear 220T1, ShoreGear 220T1A and ShoreGear 220E1 support digital trunks combined with up to 220 IP telephones, within a 1U half-width chassis. All the switches provide an audio input port for music-on-hold, plus an audio output port for overhead paging and night bell services.

ShoreGear T1k, ShoreGear 220T1 and ShoreGear 220T1A provide a T1 interface for high-density trunking to a Central Office (CO). ShoreGear T1 options support loop start, wink start or Primary Rate Interface (PRI) signaling.

ShoreGear E1 and ShoreGear 220E1 provide an E1 interface for high-density trunking to a Central Office (CO). ShoreGear E1 options support Euro-ISDN and Q-Sig Primary Rate Interface (PRI) signaling.

ShoreGear 90BRI* delivers up to 4 basic rate interfaces or 8 simultaneous communications to the Central office and up to 90 IP telephones. This switch supports the Euro ISDN signaling over its BRI interfaces.

ShoreGear T1k & E1 options can also function as a Voice over IP (VoIP) gateway to PBX installations – bridging the ShoreTel IP telephony system to pre-existing legacy systems and easing migration to IP telephony.

Key features and capabilities

Embedded call control

ShoreGear IP voice switches use VxWorks, the leading embedded, real-time operating system from Wind River® Systems, making it immune from the attacks and viruses associated with other solutions. Embedded call control gives you the assurance that your organization's communications are being delivered by the most reliable, robust platform on the market.

Distributed call control

Call control on the ShoreTel IP telephony system eliminates any single point of failure. In the unlikely

event a ShoreGear IP voice switch fails or becomes isolated by a network fault, the other switches on the network continue to operate without being affected.

SIP Support

ShoreGear IP voice switches support both SIP trunks as well as SIP devices that may be defined as user extensions. If configured, the voice switch will act as a SIP proxy enabling SIP telephones to become a part of the overall ShoreTel solution.

IP telephone failover

Site reliability can be increased by adding a single additional ShoreGear IP voice switch. If a ShoreGear IP voice switch supporting IP phones fails or is isolated by a network fault, the phones will automatically failover to the additional voice switch at the site. This "N + 1" form of redundancy is simple, cost effective and incredibly reliable.

Gateway failover

If a ShoreGear IP voice switch connected to the Public Switched Telephone Network (PSTN) fails or is isolated by a network fault, the system will automatically route calls through an alternative switch.

PSTN failover

If the Wide Area Network (WAN) is down, or if admission control for voice traffic on WAN is reached, extension-to-extension calls between sites can automatically route over the PSTN, ensuring seamless communication.

Ethernet port failover

ShoreGear IP voice switches feature redundant network uplinks. If the upstream network device fails, ShoreGear IP voice switches will automatically failover to the redundant link, providing continuous operation.

Power failover

The ShoreGear IP switch family* all feature power fail transfer. If a complete power outage exceeds the duration of the reserve power, one analog trunk on the ShoreGear IP voice switch will automatically connect to one analog telephone, providing emergency dial tone.

About ShoreTel

ShoreTel is a leading provider of *Pure IP* unified communications systems. ShoreTel enables companies of any size to seamlessly integrate all communications-voice, data, messaging-with their business processes. Independent of device or location, ShoreTel's distributed software architecture eliminates the traditional costs, complexity and reliability issues typically associated with other solutions. ShoreTel continues to deliver the highest levels of customer satisfaction, ease of use and manageability while driving down the overall total cost of ownership. Founded in 1996, ShoreTel has achieved broad industry recognition for its technology. For more information, visit www.shoretel.com or call 1-800-425-9385.

* Availability varies based on geography. Please contact your local ShoreTel Representative for availability information.



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