ShoreGear Voice Switches

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

ShoreTel®

BENEFITS

- Pure IP *unified communications delivers exceptional quality*
- *Highly scalable switch solutions meet the needs of enterprises, and small and medium businesses*
- *99.999% system availability exceeds stringent enterprise standards*
- *One system spans multiple locations*
- *Centralized management helps reduce installation*
- *RoHS/WEEE compliant*

ShoreTel® ShoreGear® 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 to help organizations realize significant productivity gains, as employees spend less time interacting with disparate voice systems and more time communicating with each other. ShoreTel's *Pure IP* unified communications (UC) solutions enable flexible dialing across the enterprise, and seamless transfer, conference, pick up, park and intercom between sites.

ShoreTel's UC system also reduces "phone tag" with features designed for efficiency, including 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 Voice Switches exceed today's most stringent enterprise IT requirements, delivering 99.999 percent availability. For maximum reliability, the processors that power ShoreGear Voice Switches do not require or use mechanical disk drives, eliminating the single most common point of system failure.

ShoreGear 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 solutions, servers can be disconnected from the ShoreTel UC system and the switches will continue to place and receive calls.

If a ShoreGear 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. 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 extremely reliable.

Smooth migration and seamless scalability

With 15 stackable, space-efficient designs, ShoreTel offers a wide range of solutions for organizations of any size. Growing companies can simply add ShoreGear 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

The exceptional ease of installation, ease of use and centralized management help lower ongoing maintenance and operating expenditures of ShoreTel's UC system. 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 UC system. Designed for power efficiency, ShoreGear Voice Switches also help lower energy consumption and further corporate green initiatives.

Exceptional voice quality

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

*"*Unified Communications and Collaboration: Top VoIP Providers,*" Nemertes Research, July 2008.

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MODEL	ShoreGear 120	ShoreGear 90	ShoreGear 90BRI †	ShoreGear 50	ShoreGear 30	ShoreGear 30BRI †
Telephones						
IP phones	120	90	90	50	30	30
Analog phones	24	4	4	2	2	2
Analog Ports						
Loop start trunks	8*	8	–	4	2	–
DID trunks*	8*	4	–	2	2	–
Extensions (telephones)	24	4	4	2	2	2
Digital Trunks						
Digital trunk channels			8 BRI Channels			2 BRI Channels
Integrated CSU						
Line and payload loopbacks						
Facilities data link						
Conference						
Make Me Conference Ports	24	12	4	6	-	-
System Capacity						
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	RJ-21X
Audio input and output (mini)	•	•	•	•	•	•
T1 / E1 (RJ-48C)						
T1 / E1 monitor (RJ-48C)						
Maintenance (DB-9)	•	•	•	•	•	•
Mechanical						
19" rack mount	•	•	•	•	•	•
Dimensions	17.2 x 1.7x 14.3 in. 43.6 x 4.4 x 36.3 cm	8.4 x 1.7 x 14.9 in. 21.3 x 4.3x37.8 cm	8.4 x 1.7 x 14.9 in. 21.3 x 4.3x37.8 cm	8.4 x 1.7 x 14.9 in. 21.3 x 4.3x37.8 cm	8.4 x 1.7 x 14.9 in. 21.3 x 4.3x37.8 cm	8.4 x 1.7 x 14.9 in. 21.3 x 4.3x37.8 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)	5.3 lb (2.4 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.	1A max.
Consumption / Dissipation	63 W max.	31 W max.	23 W max.	23 W max.	23 W max.	22 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.

* Loop start trunks on ShoreGear 120 and DID trunks on all switches are supported in the US and Canada only.

				
ShoreGear 24A	**ShoreGear T1k**	**ShoreGear 220T1/ ShoreGear 220T1A**	**ShoreGear E1k**	**ShoreGear 220E1**
		220		220
24		- / 4		
–	–	- / 2	–	–
–	–	- / 4	–	–
24	–	- / 4	–	–
	24/23B+D	24/23B+D	30B+D+F	30B+D+F
	•	•	•	•
	•	•	•	•
	•	•	•	•
24	-	- /6	-	-
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		-/RJ-21X		
•	•	•	•	•
	•	•	•	•
	•	•	•	•
•	•	•	•	•
•	•	•	•	•
17.2 x 1.7 x 14.3 in. 43.6 x 4.4 x 36.3 cm	8.4 x 1.7 x 14.9 in. 21.3 x 4.3 x 37.8 cm	8.4 x 1.7 x 14.9 in. 21.3 x 4.3 x 37.8 cm	8.4 x 1.7 x 14.9 in. 21.3 x 4.3 x 37.8 cm	8.4 x 1.7 x 14.9 in. 21.3 x 4.3 x 37.8 cm
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)
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
2A max.	1A max.	1A max.	1A max.	1A max.
63 W max.	18 W max.	18/29 W max.	18 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.

ShoreGear Voice Switches Features:*

Telephone Features
500 switches per system
Answer
Bridged Call Appearance
Call barge in
Call forward, busy
Call forward, external
Call forward, no answer
Call hold
Call join
Call park/unpark
Call pickup extension
Call pickup group
Call recording
Call stack (1-16 calls)
Call redirect
Call transfer, blind
Call transfer, consultative
Call transfer, intercom
Call transfer, mailbox
Call transfer whisper
Call waiting
Caller ID name
Caller ID number
Caller ID blocking
Conference (6-party)
Conference blind
Conference consultative
Conference intercom
Dial number (speed dial)
Directory dialing
Distinctive dial tone
Distinctive ringing
E911
Group paging
Handsfree
Hang up
Hold
Hot key pad
Huntgroups
InstaDial
Intercom
Night bell
Message waiting
Missed call
Multiple emergency numbers
Multiple line appearance
Music-on-hold
Operator ("0")
On hold reminder ring
Office Anywhere
Outbound caller ID
Paging
Park and Page
Paging extension in paging group
Pick up night bell
Redial
Ringdown
Ring tone selection
Ring tone personalization
Send digits over call
Silent monitor
SIP
Voicemail ("#")
Whisper page
Whisper page mute

Trunk types
Analog loop start
Analog wink start
TBR 21 support
T1 loop start
T1 wink start
T1 PRI
- NI2
- 4ESS
- 5ESS
- DMS 100
- QSIG master
- QSIG slave
- CAS

E1 PRI
EURO-ISDN
- QSIG
- 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
Caller ID blocking
Centrex flash
Dial-in prefix
Dial-out prefix
DID
Digit translation
DNIS
Network call routing
Network/User side PRI
Off-system extensions
SIP
Tandem trunking
Trunk groups

IP phone support
MGCP
VLAN (DHCP)
SIP (RFC 2833)
ToS/Diff Derv
UDP 5004 (patent pending)
Wideband codec
G.711uLaw
G.729A
BV-16 codec
BV-32 codec
802.3af PoE
G.722 codec
10/100/1000 switch
Headset compatible (built-in electronic headset lifter)
Hearing-aid compatible
Programmable buttons
Speaker phone (full duplex)
Custom ring tones
Phone API

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

System features
Account codes
ACD (workgroups)
Admission control
AMIS
Auto attendant
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)
Office Anywhere (external assignment)
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
5 groups max. per switch
Call forward busy
Call forward no answer
Scheduled modes

**Not all features in this list are supported by every switch. Please contact your ShoreTel representative for more details.*

About ShoreTel

ShoreTel is a leading provider of *Pure IP* Unified Communications solutions that enable companies of any size to seamlessly integrate voice, video, messaging and data with their business processes. Independent of device or location, ShoreTel's unique distributed software architecture eliminates the traditional costs, complexity and reliability issues inherent in other solutions. Founded in 1996, ShoreTel has achieved broad industry recognition for this proven technology, and continues to deliver the highest levels of customer satisfaction, ease of use and manageability while driving down the overall total cost of ownership. For more information, visit www.shoretel.com.

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Choices to meet every need

ShoreGear Voice Switches support up to 120, 90, 50 and 30 IP telephones or combinations of analog devices, providing a full range of solutions that are ideal for enterprise headquarters, regional offices and small to midsize businesses. 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. ShoreGear 220T1A also supports four analog extensions and two loop start trunks. 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. ShoreGear T1 options support loop start, wink start or PRI signaling.

ShoreGear E1k and ShoreGear 220E1 provide an E1 interface for high-density trunking to a central office. ShoreGear E1 options support Euro-ISDN and Q-Sig PRI signaling.

All ShoreGear switches with a T1 or E1 interface can also function as a Voice over IP (VoIP) gateway to PBX installations—bridging the ShoreTel UC system to pre-existing legacy systems and easing migration to IP telephony.

ShoreGear 90BRI* and ShoreGear 30BRI* deliver up to eight and two simultaneous communication channels to the central office, and support up to 90 and 30 IP telephones respectively. These switches also support the Euro ISDN signaling over BRI interfaces.

Key features and capabilities

Embedded call control

ShoreGear Voice Switches use the VxWorks leading real-time operating system, making them immune from the attacks and viruses associated with other solutions. Embedded call control helps ensure that your organization's communications are delivered by the most reliable, robust platform on the market.

Distributed call control

Call control on the ShoreTel UC system eliminates any single point of failure. In the unlikely event a ShoreGear 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 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

A single additional ShoreGear Voice Switch helps ensure maximum reliability. If a ShoreGear 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 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 Voice Switches feature redundant network uplinks. If the upstream network device fails, voice switches will automatically failover to the redundant link, helping to ensure continuous operation.

Power failover

Every ShoreGear Voice Switch features power fail transfer. If a complete power outage exceeds the duration of the reserve power, one analog trunk on the ShoreGear Voice Switch will automatically connect to one analog telephone, providing emergency dial tone.

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