



## Flexible WAN Connectivity with High Availability for Small Offices

- Multiple WAN interface support for various connectivity options
- Embedded LTE mobile WAN as a backup for fixed-lines to ensure high availability (SBG3600-N)
- Supports VDSL bonding to expand bandwidth for fixed-lines (SBG3500-N/SBG3600-N)
- 802.11n technology for extreme performance
- VPN, Firewall and URL/key word filtering provide solid data security
- Comprehensive mobile broadband USB dongle compatibility and multi-WAN load-balancing, failover and fall back support

Networking services are now becoming more imperative for small businesses to take advantage of easy communication and effective services. The ZyXEL SBG3600-N and SBG3500-N Series are the “multi-WAN gateway” that provides high-speed Internet access for business users. Featuring VDSL2/ADSL2+ functionality, one GbE WAN with Small Form Pluggable (SFP) interface and a built-in LTE module, these devices offer flexible multiple-WAN connectivity to adopt various Internet interfaces. It also enhances network performance for small businesses to pursue the ultimate success.

### Benefits

#### Multi-WAN connectivity with load balancing and failover

The ZyXEL SBG3600-N/SBG3500-N Series provides multiple WAN interfaces, including LTE, DSL, fiber, and Gigabit Ethernet, for load balancing and WAN backup. Service providers can flexibly offer WAN services of the highest availability in one single box for small business owners to enjoy non-stop services. Powered by the load balancing and fail-over mechanisms among multiple WANs, it maximizes WAN stability for mission-critical Internet applications with benefits of the integrated bandwidth.

#### High availability reinforced with 3G and LTE mobile WAN

It would be a disaster when fixed-lines get interrupted due to the difficulty maintaining the infrastructure. The ZyXEL SBG3600-N Series is embedded with a LTE module providing the flexibility to switch the WAN connection from DSL or Ethernet to LTE WAN dynamically as a fail-over backup when needed. With 3G/4G USB dongle support, both the SBG3600-N and SBG3500-N Series are able to take advantage of the 3G/4G WAN backup to ensure high availability required for stable networks.

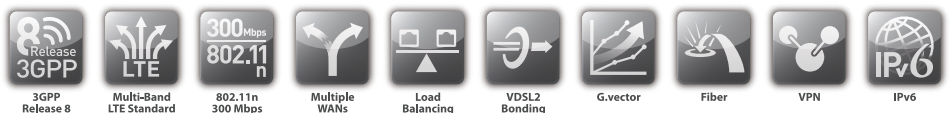
#### Increased bandwidth and flexible range

The advanced VDSL2/ADSL2+ bonding\* and dual-personality Ethernet WAN functionalities enable service providers to increase bandwidth and extend coverage. With the available copper lines, service providers can take advantage of VDSL2/ADSL2+ bonding to not only provide higher speeds for the existing subscribers, but also improve the user experience for those who are far away from the cabinet with stable, sufficient bandwidth regardless of the distance. Besides, if fiber lines are preferred, the ZyXEL SBG3600-N/SBG3500-N Series can use the Small Form Pluggable (SFP) interface to connect Fiber Ethernet for distances much longer than Gigabit networks, or simply connect to other Ethernet WAN devices without additional cost laying new fiber.

\* VDSL2/ADSL2+ bonding only supported in SBG3500-N/SBG3600-N (Annex A)



**SBG3600-N/  
SBG3500-N Series**  
Multi-WAN Small Business Gateway



### Model List

#### SBG3600-N



- Embedded LTE WAN
- 4 x GbE LAN ports
- 1 x GbE WAN port
- 1 x SFP port
- 1 x USB port
- 2 x RJ-11 DSL ports

#### SBG3600-NB



- Embedded LTE WAN
- 4 x GbE LAN ports
- 1 x GbE WAN port
- 1 x SFP port
- 1 x USB port
- 1 x RJ-45 DSL port

#### SBG3500-N



- 4 x GbE LAN ports
- 1 x GbE WAN port
- 1 x SFP port
- 1 x USB port
- 2 x RJ-11 DSL ports

#### SBG3500-NB



- 4 x GbE LAN ports
- 1 x GbE WAN port
- 1 x SFP port
- 1 x USB port
- 1 x RJ-45 DSL port

### Robust security design

Based on Access Control List (ACL) rules, Stateful Packet Inspection (SPI), Denial of Service (DoS) and Distributed Denial of Service (DDoS) measures, the ZyXEL SBG3600-N/SBG3500-N Series provides the first-line defense against hackers, network intruders and other harmful threats. The configurable Demilitarized Zone (DMZ) is another benefit that provides more flexible accessibility while preventing external attacks toward the confidential resources and databases.

### Superior performance with 802.11n wireless

With built-in 802.11n technology, the ZyXEL SBG3600-N/SBG3500-N Series is the ultimate solution for exceptional security, speed and coverage. Featuring multiple SSIDs that allow companies to protect sensitive data by separating public Internet access from the company's private LAN for staffs and guests. These features not only provide high quality Wi-Fi access, but also make it easy for companies to share wireless connectivity without compromising security.

Moreover, the ZyXEL SBG3600-N/SBG3500-N Series has been designed to simplify the deployment and management when small businesses plan to build or expand the Wi-Fi network. SBG3600-N/SBG3500-N is with integrated WLAN controller functions capable of managing up to 10 Wi-Fi APs; this gives small businesses a quick flexible approach to meet the growing Wi-Fi demand.

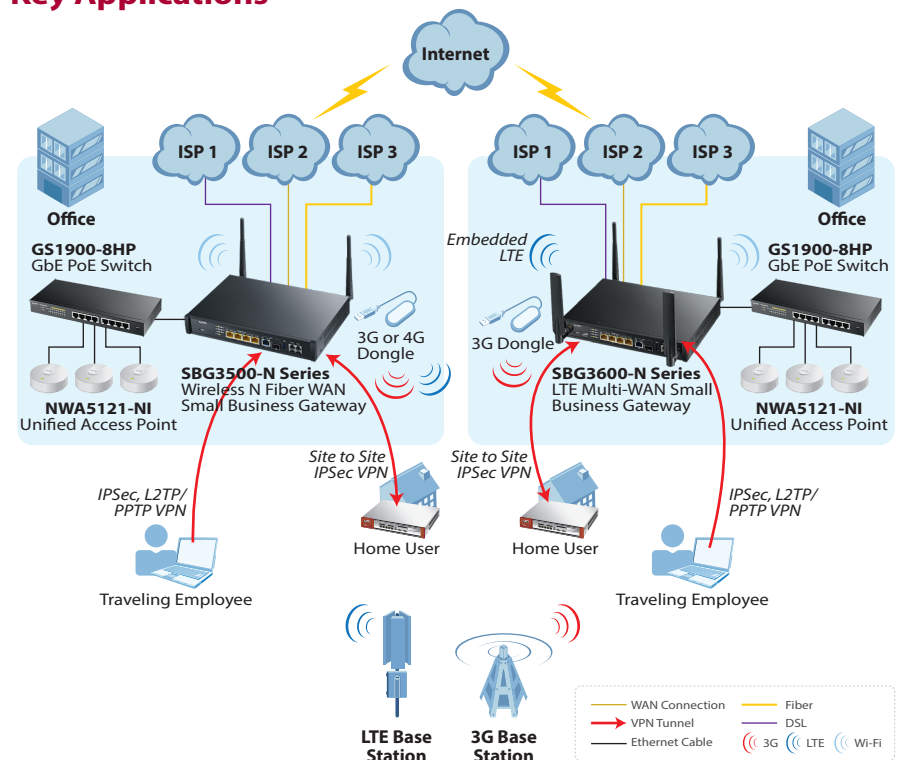
### Safe, reliable Virtual Private Network (VPN) connections

The ZyXEL SBG3600-N/SBG3500-N Series allows small businesses to establish stable VPN connections with partners and branch offices; road warriors and telecommuters can use IPsec as well as L2TP or PPTP VPN to safely access corporate networks without maintaining VPN software on their PCs. Designed with VPN HA features to ensure that the VPN connectivity is always on for the business needs.

### Inclusive network management

The ZyXEL SBG3600-N/SBG3500-N Series offers two-level login privilege mechanism to differentiate user segments; and the Internet service providers can also define the policies for the limited accounts to easily manage them with the integrated profile database. It also provides TR-069 and simple network management protocols for service providers to conduct remote device management tasks.

### Key Applications



## Specifications

Model	SBG3600-N	SBG3600-NB	SBG3500-N	SBG3500-NB
<b>Hardware Specifications</b>				
<b>DSL</b>	VDSL2/ADSL2+ 17a bonding, 2 x RJ-11 (DSL)	VDSL2/ADSL2+ 17a single line, 1 x RJ-45 (DSL)	VDSL2/ADSL2+ 17a bonding, 2 x RJ-11 (DSL)	VDSL2/ADSL2+ 17a single line, 1 x RJ-45 (DSL)
<b>Ethernet WAN</b>	RJ-45/SFP dual personality			
<b>LAN port</b>	4			
<b>DMZ</b>	V (LAN selectable)			
<b>USB port</b>	1			
<b>3G/4G</b>	Embedded LTE module External 3G USB dongle supported		External mobile USB dongle	
<b>LTE Specifications</b>				
<b>Standard compliance</b>	3GPP release 8		-	
<b>Operating frequency</b>	LTE Band 3/7/8/20		-	
<b>Data rate</b>	100 Mbps DL within 20 MHz; 50 Mbps UL within 20 MHz		-	
<b>RF output power</b>	23 dBm		-	
<b>No. of antenna</b>	2 antennas		-	
<b>Antenna gain</b>	3 dBi		-	
<b>System Capacity &amp; Performance</b>				
<b>SPI firewall throughput (Mbps)</b>			800 Mbps	
<b>VPN throughput (Mbps)</b>			40 Mbps	
<b>Max. concurrent IPsec</b>			20	
<b>VLAN interface</b>			16	
<b>WLAN Management</b>				
<b>AP controller</b>			Yes	
<b>Managed AP number (default/max.)</b>			2/10	
<b>Wireless Specifications</b>				
<b>Standard compliance</b>			802.11 b/g/n	
<b>Wireless frequency</b>			2.4 GHz	
<b>Radio</b>			1	
<b>SSID number</b>			4	
<b>Maximum transmit power</b>	EU (ETSI) 2.4 GHz	20 dBm, 2 antennas		
<b>No. of antenna</b>	2.4 GHz: 2T2R MIMO (Detachable, SMA-R)			
<b>Antenna gain</b>	3 dBi			
<b>Data rate</b>	<ul style="list-style-type: none"> <li>• 802.11 b/g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48 and 54 Mbps</li> <li>• 802.11n: up to 300 Mbps in MCS15 (40 MHz; GI = 400 ns)</li> </ul>			
<b>Receive sensitivity (2.4 GHz)</b>	<ul style="list-style-type: none"> <li>• 11 Mbps ≤ -76 dBm; 54 Mbps ≤ -65 dBm</li> <li>• HT20 ≤ -64 dBm; HT40 ≤ -61 dBm</li> </ul>			
<b>Key Software Features</b>				
<b>WAN load balancing/failover</b>			Yes	
<b>Virtual Private Network (VPN)</b>			Yes (IPSec, PPTP/L2TP over IPSec)	
<b>VPN failover/fallback</b>			Yes	
<b>Captive portal</b>			Yes	
<b>Access control list</b>			Yes	
<b>SNMP MIB II</b>			Yes	
<b>TR-069</b>			Yes	
<b>Power Requirements</b>				
<b>Power input</b>			12 VDC, 2 A	
<b>Max. power consumption (watt)</b>			15.3	
<b>Physical Specifications</b>				
<b>Rack mountable</b>			Yes	
<b>Included accessories</b>	• Ethernet cable • DSL cable • Power adapter • Rack mounting kit			
<b>Item</b>	<b>Dimensions (WxDxH)(mm/in.)</b>	242 x 170 x 36/9.53 x 6.69 x 1.42		
	<b>Weight (kg/lb.)</b>	1.69/3.73		
<b>Packing</b>	<b>Dimensions (WxDxH)(mm/in.)</b>	343 x 209 x 75/13.50 x 8.23 x 2.95		
	<b>Weight (kg/lb.)</b>	2.43/5.36		
<b>Environmental Specifications</b>				
<b>Operating</b>	<b>Temperature</b>	0°C to 40°C/32°F to 104°F		
	<b>Humidity</b>	10% to 95% (non-condensing)		
<b>Storage</b>	<b>Temperature</b>	-30°C to 70°C/-22°F to 158°F		
	<b>Humidity</b>	10% to 95% (non-condensing)		
<b>Others</b>				
<b>MTBF (hr)</b>			300,000	

### Features

#### Software Features

##### High Availability WAN

- Fixed-line WAN interface options: VDSL, Ethernet/SFP
- Mobile WAN interface options:
  - SBG3500-N: 3G or 4G dongle supported
  - SBG3600-N: Embedded LTE module, 3G dongle supported
- User configurable multi-WAN load balancing with one WAN for failover/fallback

##### LTE (SBG3600-N)

- Up to 200 active users in a cell (5 MHz)
- Less than 5 ms user-plane latency
- Enhanced support for end-to-end QoS
- Supports NAT router mode
- DHCP client/server, forwarding
- DNS proxy, DDNS
- Multiple APN
- Linking budget control
- Syslog/CLI
- Firewall with SPI
- Internet Control Message Protocol (ICMP)
- Pass through traffic type:
  - Multicast
  - PPTP/L2TP/IPSec VPN
  - MPPE

##### VDSL Compliance

- G.993.1 VDSL, G.993.2 VDSL2 Annex A/B compliant, band plan 997, 998
- G.994.1 (G.hs) Handshake, G.997.1
- Support VDSL profiles up to 17a
- Packet Transfer Mode (PTM) 17a bonding
- Rate adaption
- Seamless Rate Adaption (SRA)
- INP: Up to 16 symbols
- G.INP, G.Vector
- PhyR configurable

##### ADSL Compliance

- G.992.1 (G.dmt), G.992.2 (G.lite) Annex A/B compliant
- G.992.3 (ADSL2), G.992.5 (ADSL2+) Annex A/B compliant
- Reach-Extended ADSL (RE ADSL)

- Seamless Rate Adaptation (SRA)
- PPP over ATM AAL5 (RFC2364)
- Support VC-based and LLC-based multiplexing
- ATM traffic shaping (CBR, VBR-rt/nrt, UBR)
- PhyR configurable Ethernet/SFP WAN
- Ethernet WAN and SFP dual personality

##### Networking

- N-way, automatic speed negotiation supported
- Auto-sensing, auto-detection MDI/MDIX Bridge/Router
- Dynamic learning for up to 2014 MAC address
- PPPoE, PPPoA, IPoE, IPoA (RFC 1483)
- DHCP client/server/relay
- DHCP option 43/60/61/66/121/125/138/150
- DHCP client table
- DNS proxy, DDNS
- RIP I/RIP II supported
- Adjustable MTU size
- QoS classification route, queuing and scheduling
- Interface grouping
- IPv6 support

##### VPN

- Simple wizard support (Express wizard)
- Concurrent 20 IPsec VPN tunnels
- IPsec, PPTP and L2TP over IPsec VPN
- IPsec HW engine
- Algorithm: AES (128/192/256)/3DES/DES
- Authentication: SHA-1/MD5
- Auto reconnect VPN
- VPN failover/fallback

##### Firewall & Security

- Full cone NAT/Symmetric NAT/Restrict Cone NAT, NAT ALGs
- 20,000 NAT sessions supported
- Configurable DMZ
- PPTP/IPsec/L2TP pass through
- PAP/CHAP/MS-CHAP v1 and v2
- Stateful packet inspection
- DoS/DDoS protection
- Access control: up to 256 ACL rules
- Directional ACL rule support

##### USB

- FTP file sharing
- Supported file system: FAT16/32, EXT2/3
- Support mobile broadband dongle
- Support WWAN package update
- 3G budget control

##### Wi-Fi Specifications

- IEEE 802.11n compliance, backward compatible with 802.11 b/g
- Dynamic auto channel selection
- WPS on/off configuration in Web GUI
- Multiple number of SSID: Up to 4
- Per-SSID VLAN binding
- WEP data encryption 64/128 bit
- WPA/WPA-PSK with TKIP & AES security type
- WPA2/WPA2-PSK with TKIP & AES security type
- IEEE 802.1x (EAP-MD5, TLS and TTLS)
- 32 MAC filter
- Client connection: A maximum of 32 clients simultaneously connect to the AP
- Adjustable WLAN output power (via CLI, XML)
- Captive portal

##### WLAN Management

- ZyXEL AP Controller (APC) Lite compliant
- Client RSSI threshold to prevent sticky clients
- Wireless Layer 2 isolation
- RADIUS authentication
- Wi-Fi Multimedia (WMM) wireless QoS
- CAPWAP discovery protocol
- ZyXEL Wireless Optimizer (ZWO) AP planning

##### System Management

- Two-tier log in
- Dual image firmware protection
- Text based configuration (XML based)
- Support TR-069, TR-098, TR-111, SNMP v1, and v2c
- Syslog
- User management (user data base/profile)

##### Certification

###### CE Certified

- EMC/RF
- Safety
- ErP
- RoHS 2

### Access Point Compatibility List

Series	NWA3000-N Series	NWA5000 Series	NWA5120 Series
	Unified Pro Access Point	Managed Access Point	Unified Access Point
Model	NWA3160-N NWA3560-N NWA3550-N	NWA5160N NWA5560-N NWA5550-N	NWA5121-NI NWA5121-N NWA5123-NI NWA5301-NJ
Functions			
Central management	Yes	Yes	Yes
Auto provisioning	Yes	Yes	Yes
Data forwarding	Local bridge	Local bridge	Local bridge

For more product information, visit us on the web at [www.ZyXEL.com](http://www.ZyXEL.com)



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