Billion SG6500NXL

Smart Universal Gateway

The Billion SG6500NXL, Smart Universal Gateway, is an all-in-one router designed for users to enjoy real-time power management and secured wireless Internet access. Integrated with ZigBee wireless technology, the Smart Universal Gateway can communicate wirelessly with Billion ZigBee-enabled smart meters such as Billion SG3015 series and Billion SG3030 series.

The Billion SG6500NXL not only provides a wireless AP feature for connecting with local smart phone or notebook but also acts as a wireless client for connecting to exiting wireless gateway. This feature can extend the wireless coverage and reduce the wiring cost. The Billion SG6500NXL also expends the wireless coverage with its Dual-WAN design, Internet access via broadband/DSL and/or back up through 3G network, to keep users always-connected.

This Smart Universal Gateway is an important hub of Billion/BEC BEsmart Energy Management Ecosystem which consists of various sensors such as smart meter, power plug, smart switch, IHD, thermostat, and other sensors. The Billion SG6500NXL provides flexible and easy development platform via a well-defined API (Application Program Interface) for system integrator and software partner to integrate their back-end solution and application software, and further to come out their own cloud service and apps.

Billion provides two models of Billion SG6500NXL according to different applications in order to meet with customers' need.

- **Billion SG6500NXL-Std (Standard Version)**
  The Billion SG6500NXL-Std is designed for SI and software companies that they can choose any kinds of platform to develop their software applications based on Billion API. The Smart Universal Gateway pushes all the recorded data to the back-end / cloud system which were built by SI and software companies so users can remotely monitor energy consumption and manage their appliances. This solution is ideal for SI of energy management and service providers.

- **Billion SG6500NXL-SDK (Software Development Kit Version)**
  The Billion SG6500NXL-SDK is designed for SI and software companies to develop the software inside of Billion SG6500NXL-SDK for providing the customized services and solutions to the end customers.

- Fully IEEE 802.15.4 and ZigBee PRO compliant
- Dual WAN – broadband and 3G connections
- Supports wireless AP mode and client mode
- Wireless bridge to connect with existing wireless gateway
- Build-in 3G module for 3G connection.
- Build-in RS485 for communicates to RS485 end devices.
- 1 x USB 2.0 Host ports for USB storage
- Support internal storage for history data log.
- Real Time Clock for system log.
- Support DO/DI for external control.
- Auto fail-over for always-on connection
- Compliant with ZigBee HAN (Home Automation Profile)
- Provides API for vendors to develop their App and cloud service
- Ideal for:
  - Office users
  - Industrial and commercial users
  - Utilities companies
- Works as part of ZigBee–based energy management solution for business partners:
  - Power Utilities: solar power, wind power, etc.
  - ZigBee network system integrator and planners
  - House builders

Features & Specifications

Availability and Resilience
- Dual-WAN ports (4G LTE & Ethernet WAN)
- Auto fail-over/fail-back
- Dual image for firmware backup

Embedded 4G LTE (fallback to 3G)
- Embedded 4G LTE module
- Supported frequency bands:
  - LTE: B1 (2100MHz), B3 (1800MHz), B7 (2600MHz),B8 (900MHz), B20 (800MHz)
  - WCDMA: B1 (2100MHz), B2 (1900MHz),B5 (850MHz), B8 (900MHz)
- Peak Downlink/Uplink Rate: 100Mbps/50Mbps (Depends on carrier network support)

Network Protocols and Features
- NAT, static routing and RIP-1 / 2
- Transparent bridging
- Virtual server and DMZ
- SNTP, DNS relay and DDNS
- IGMP snooping and IGMP proxy

Firewall Management
- Built-in NAT Firewall
- Stateful Packet Inspection (SPI)
- Prevents DoS attacks including Land Attack, Ping of Death, etc.
- Remote access control for web base access
- Packet and URL filtering
- Password protection for system management
- VPN pass-through

Quality of Service Control
- Traffic prioritization based-on IP protocol, port number and address

Wireless LAN
- Compliant with IEEE 802.11n, 802.11g and 802.11b standards
- 2.4GHz - 2.484GHz frequency range
- 64 / 128 bits WEP supported for encryption
- WPS (Wi-Fi Protected Setup) for easy setup
- Wireless Security with WPA-PSK / WPA2-PSK support
- WDS repeater function support
- Multiple SSID
- Wireless bridge to connect with existing wireless gateway

Management
- Quick installation wizard
- Web-based for remote and local management
- TR-069
- Firmware upgrades and configuration data upload/download via web-based interface
- SNMP v1 / v2 / v3, MIB-I and MIB-II support
- Syslog monitoring
- Supports DHCP server/client/relay
- Mail Alert
- Multiple language support

Hardware Specifications
Physical Interface
- USB: USB 2.0 port x 1
- WLAN: 2T2R antenna x 2
- ZigBee: External antenna x 1
- 3G/HSPA: External antenna x 1
- SIM card socket x 1
- Micro SD card socket x 1
- RS485: Master x 1
- Digital input x 4
- Relay output x 1
- Ethernet LAN: 10/100/1000Mbps RJ-45 Ethernet port x 2
- Ethernet WAN: 10/100/1000Mbps RJ-45 Ethernet port x 1
- Console port (mini USB)
- Configurable GPIO x 8 (DB15)
- Reset button
- WPS/ZigBee push button
- Power jack
- Power switch

Physical Specifications
- Dimensions: 8.66" x 5.43" x 1.1"
             (220mm x 138mm x 28mm)

Power Requirements
- Input: 12V DC, 1.2A

RF Specifications
- Fully IEEE 802.15.4 / ZigBee PRO compliant
- Operating Band: 2.400 - 2.483GHz
- 16 channels in the 2.4GHz ISM band

Notes:
 Specifications in this datasheet are subject to change without prior notice.

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Application Scenarios

The Billion SG6500NXL can auto collect front-end sensor information via various communication interface like ZigBee, Ethernet to Power Line Communication and RS485. All the data can be stored in SG6500NXL or push to remote server automatically. The SG6500NXL can act as a wireless AP and wireless client at the same time. It can be able to collect data from ZigBee end devices via ZigBee wireless network for energy management. Meanwhile, it's able to be a wireless bridge in order to connect with existing wireless gateway.