

## Billion SG5000 Broadband PLC AMI Module

The Billion SG5000 is a broadband PLC communication module which is embedded in a smart meter. It enables Advanced Metering Infrastructure (AMI) services for meters with serial interfaces. This embedded Broadband PLC module has a state-of-the-art BPL chipset with 200Mbps. It can offer robust and broadband network communication over the electricity grid, integrating the existing metering systems with an intelligent IP-based network. It can interface the meter either directly or via a collector, supporting real-time remote control as well as Smart Grid applications including power outage notification and alarm information, load management, historical data and readings every minute, remote monitoring of the grid network, real-time consumption and tariff data to customers, and remote connect / disconnect, etc.

### Advantages of Billion AMI Broadband PLC Solutions

#### Significant cost saving

The initial cost of implementation of Billion BPL as the AMI communication network technology may be higher compared with narrow-band based PLC or other wireless technologies. However, high bandwidth and scalable functionalities of BPL add significant cost savings to the maintenance of AMI and implementation of future smart grid applications. BPL also provides a cost-effective alternative solution for last mile broadband access to home and office buildings.

#### Supports wide range of applications and future extension

Bi-directional broadband bandwidth offered by BPL supports wide range applications such as real time monitoring, video surveillance, SCADA, tele-protection and other consumer services, which all aim at improving customer satisfaction.

#### Ease of central control and remote management

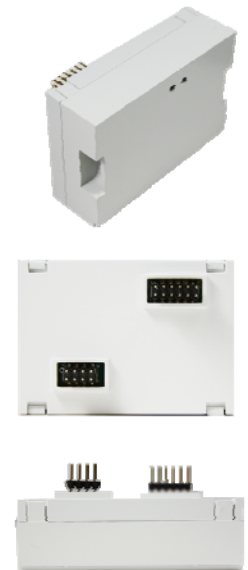
The system supports standard-based SNMP network management protocol which reduces maintenance cost tremendously.

#### Secure transmission

Like all IP based networks, there are many potential threats and vulnerabilities within an AMI network. Utilities are now moving from a world of offline meters to a network of smart meters communicating on 7x24 basis. Security measurement is an important task in the planning of AMI. BPL provides enhanced security by leveraging standard based DES/3DES encryption to ensure the protection of consumer data and AMI infrastructure.

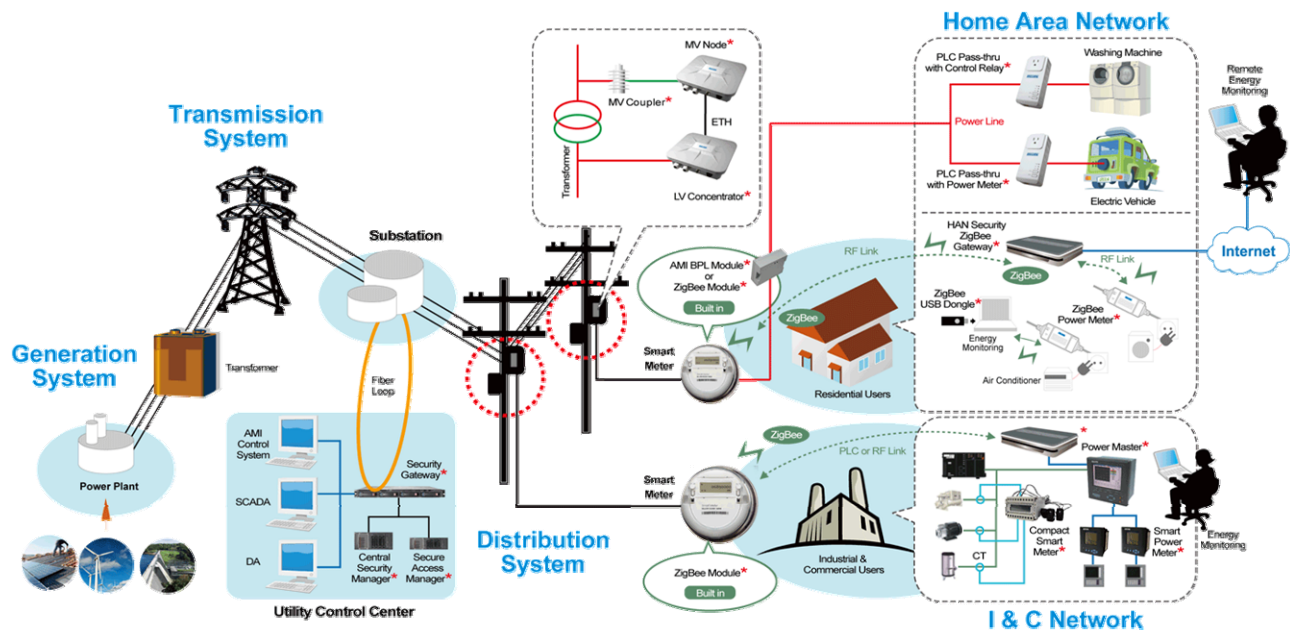
#### Economical and flexible solutions for low density rural areas

In most rural areas, cellular signal are not easily accessible as wireless coverage is much lower. Narrowband PLC system provide an economical AMR solution but often lacks the real-time communication capability and critical reliability as it takes longer to collect data and failure rates are higher. Infrastructures built with BPL technology can solve many of the issues described above and provide economical and flexible solutions for data collecting for low density rural communities.



- Daughter board
- 44Mbps physical connection bandwidth
- 10 / 100 Ethernet (optional)
- TTL UART interface
- DC power: DC 12~18V
- On board LED status indicator
- Automatic repeating and Ad-Hoc networking
- Automatic re-configuration
- PnP installation
- DES, 3DES, 128-bit and 256-bit AES
- Up to 16 direct PLC connection
- 802.1P traffic priority classification
- Power mask management
- SNMP and web network management protocol
- Up to 1536 carriers for better noise immunity
- FCC part 15, class A certification
- Dimension: 70 x 50 x 25 mm

## Billion Smart Grid Product Portfolios



\* Billion's Products

## Comparison Table

► Billion broadband PLC solutions have unsurpassed advantages for a Smart Grid.

Technology Advantages	Billion Broadband PLC Solutions	Narrowband PLC Solutions	Radio Frequency (900MHz)	Mobile Networks (GPRS etc)
<b>Performance</b> 2-way real time communication	***	*	*	**
<b>Scalability</b> Bandwidth for present and future applications	***	*	*	**
Complete solution for DA (Distribution Automation) and AMI (Advanced Metering Infrastructure)	***	*	**	*
<b>Self healing mechanisms</b>	***	*	*	*
<b>Standards based</b> End-to-end IP connectivity	***	*	*	**

**Note:** All the specifications are subject to change without prior notice.  
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