

Griffin® 1000 Hybrid Gateway

The Griffin 1000 is Amperion's Hybrid Mesh™ network gateway designed for on-the-wire and off-the-wire applications. Based on an open standard IP architecture, the Griffin 1000 provides a robust communications platform supporting multiple fixed and wireless protocols. The Griffin 1000 is ruggedized for durability and inclement weather conditions.



Smart Grid Application Support

The Griffin 1000 was designed from the ground up to support smart grid applications requiring a robust network gateway.

Examples:

Distribution

Distribution applications will require two way communications to support consumer applications in addition to grid stability applications.

Grid Reliability

For improved grid reliability and efficiency, utilities will require reliable communications which serve as the platform to transfer information about the grid near real-time.

Sensing and Monitoring

Communications will provide a way to automate sensing and monitoring applications such as measuring congestion and grid stability, monitoring equipment health, and preventing theft.

Demand Response and Metering

Managing customer consumption and balancing energy demand is another set of applications that require smart grid communications.

Features and Benefits

Redundancy and High Availability

The IP routing capabilities of the Griffin 1000 enable data to be re-routed in the event of a network path failure. Amperion's patented Switcher™ algorithm provides built-in intelligence for instant failover while maintaining high system availability for smart grid applications.

End-to-End Quality of Service (QoS)

There are a plethora of smart grid applications present and evolving that will contribute to network congestion. Sensing and control applications, energy load, resource management, and advanced metering will all contribute to increased network traffic. Through policy management, QoS will enable traffic priority based on delay, jitter, bandwidth, packet loss, and network availability.

Multi-Tier Cyber Security

The Griffin 1000 employs "Defense in Depth" security via Amperion's multi-tier cyber security solution. IP VPNs are used to secure network tunnels, while RADIUS AAA is used to authenticate devices and users accessing the network. And finally, advanced encryption using a 256-bit block size is used to secure data going across the network.

Hybrid Mesh Architecture

Real world smart grid communications will require a mix of fixed and wireless technologies for various parts of the grid. Utilities should be entitled to select the communications medium that best serves their topology and applications. Amperion's Hybrid Mesh architecture enables utilities that option by supporting a mix of wired and wireless technologies in a single device.

Ruggedized

The Griffin 1000, an outdoor pole mountable system, is ruggedized to handle extreme weather conditions ranging from -40C to 85C.

Web Based Management

The Griffin 1000 is managed and monitored by the Amperion NMS. The NMS provides report generation capabilities so the user can monitor the Griffin 1000 performance. Reports include a graphical representation of throughput, temperature, uptime and availability.

Complete Smart Grid Solution

The Griffin 1000 hybrid gateway together with the Eagle 1000 wireless gateway and the Amperion NMS, make up a complete product set for smart grid communications.

WIRELESS NETWORK SPECIFICATIONS

Interfaces	Wifi, WiMax, Zigbee
Tx Power	Up to 600mW (28dBm)
Sensitivity	802.11 a -94dBm at 6Mbps; -74dBm at 54Mbps
	802.11 g -94dBm at 6Mbps; -74dBm at 54Mbps
	802.11 b -97dBm at 1Mbps; -92dBm at 11Mbps
Frequencies	802.11 b/g 2.4GHz
	802.11 a 5GHz
Security	WEP, WPA-PSK

FIXED NETWORK SPECIFICATIONS

BPL:

Standard	IEEE 802.3u
Frequency	2 – 34 MHz
Frequency Agility	5MHz band pass filters; 6 software selectable non overlapping channels
External Connector	50 ohm N connector

OTHER INTERFACES

Ethernet	10/100Mbps weather proof external; RJ45
Serial to IP	RS-232, RS-485

MANAGEMENT

Options	HTTPS, SSH CLI, SNMPv2c
Logging	Syslog

COMPLIANCE

Regulatory	EU R&TTE and LV Directives ETSI EN 301 489-1, ETSI EN 301 489-17 CENELEC EN 60950-1 ANSI/UL 60950-1, CAN/CSA C22.2 60950-1
CE Mark	Compliant

PHYSICAL CHARACTERISTICS

Dimensions	40cm x 23cm x 17cm (15.75" x 9.05" x 6.69")
Weight	8kg (16.62 lbs)
Mounting	Overhead pole mounted

ENVIRONMENTAL

Operating Temperature	-40C to 85C
Operational Humidity	10% to 80% non-condensing
Packaging	Sealed weatherproof enclosure rated for outdoor use

ELECTRICAL

Input	110VAC/60Hz; Range: 90VAC-136VAC 220V/50Hz; Range: 180VAC-264VAC
Consumption	40W

HV Specifications

HV Line Voltage	69KV to 138KV
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MV Specifications

MV Line Voltage	6KV to 46KV
LV Line Voltage	110V, 220V
Line Current	Up to 300A
Line Frequency	50Hz or 60Hz

STANDARDS

Security	NERC CIP, AES, 802.1x
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PACKAGE CONTENTS

Dual BPL Modem,
Griffin Gateway 1-4 Wireless radios.

PACKAGE OPTIONS

Antennas	802.11 a/b/g selected per customer application Mounting brackets and cable
Application Kits	assemblies
Battery Backup	24AH SLA battery Option available for lightning protection on all RF ports (wireless and BPL)
Lightning Arresters	protection on all RF ports (wireless and BPL)

Protected by multiple US and International Patents:
 US 5,684,450; US 5,929,750; US 5,933,071; US 6,172,597; US 6,144,192; US 6,282,405; US 6,756,776;
 US 6,885,674; US 6,985,715; US 6,993,317; US 7,307,357; US 7,492,245; US 7,535,685; US 5,864,284;
 US 6,040,759; US 7,319,717 and other patents pending.