

Eagle™ 1000 Wireless Gateway

Amperion's Eagle Wireless Gateway is a secure smart grid pole-top network appliance designed for two-way communications in distribution applications. The Eagle's two-way communications system supports distribution grid and smart metering applications. Amperion's flexible architecture empowers utilities to make the best communications selection appropriate for specific applications and environmental factors.



Features and Benefits

High Availability, Rugged, Flexible

The Eagle 1000 provides the best in wireless coverage utilizing high power 802.11 WiFi, 900MHz, or ZigBee radios and a variety of directional, patch and omni antennas. With a ruggedized NEMA IP4 enclosure and extended industrial temperature range, the Eagle 1000 can operate in harsh outdoors environments.

Multi-Tier Cyber Security

The Eagle 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. Data encryption is used to secure data going across the network.

End-to-End Quality of Service (QoS)

There are a plethora of smart grid applications present and evolving that will most likely cause 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.

Web Based Management

The Eagle 1000 is managed and monitored by the Amperion NMS. The NMS provides report generation capabilities so the user can monitor the device and the wireless link performance. Reports include a graphical representation of throughput, temperature, uptime and availability. It is integrated with Google Earth maps so that power outages and equipment failures can be located and repaired quickly using a visual representation of the entire network.

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 in any terrain topology. The combination of "on the wire" and "off the wire" communications technologies provides the best of both worlds.

Smart Grid Application Support

The Eagle was designed from the ground up to support smart grid applications requiring robust wireless solutions. Examples:

Smart Grid Monitoring

The health of the grid may be monitored and managed via the Eagle 1000 two-way communications network.

Grid Reliability

Distribution Automation

Advanced Metering Interface

Demand Response

Home Area Networks

WIRELESS SPECIFICATIONS

Interfaces	WR1001	One 802.11b/g radio
	WR1002	One 802.11b/g radio; One 802.11a radio
	WR1003	One 802.11b/g radio; Two 802.11a radios
	WR1004	One 802.11b/g radio; Three 802.11a radios

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
900MHz

Security NERC-CIP compliant

OTHER INTERFACES

Ethernet 10/100Mbps weather proof external;
RJ45

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 39cm x 34cm x 20cm
(15.35" x 13.86" x 7.87")

Weight 7.5Kg (16.52lbs)

Mounting Pole top

ENVIRONMENTAL

Operating Temperature -20 C to 50 C (-4 F to 122 F)

Operational Humidity 10% to 80% non-condensing

Packaging Sealed weatherproof NEMA enclosure
rated for outdoor use

ELECTRICAL

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

Consumption 24W

OPTIONAL ACCESSORIES

Antennas 802.11a/b/g Selected per
customer application

Application Kits Mounting brackets and cable
assemblies

Battery backup 8AH SLA battery

Lightning arresters for lightning protection

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.