



Innovative Smart Grid Wireless Communications Network¹

A star topology wireless communication network in which a central Access Point communicates low-rate non-continuous data with millions of fixed Nodes distributed over a very wide geographical area.

The network supports Nodes with various communication requirements. Nodes can easily be reconfigured over-the-air to support future upgrades.

Key Features

- Bandwidth conservation using high order modulation.
- 6X data rate of BPSK in same bandwidth using 64-QAM Pseudo Orthogonal QPSK².
- Supports small meter messages to large security image messages.
- Single network architecture supports a large variety of communication requirements.
- Innovative design eliminates the usual acquisition, synchronization, and collision issues.
- Message retransmission rarely required due to lack of message collisions.
- Programmable Node data rate, sensitivity, and message format.
- New Nodes easily integrated as network grows and expands.
- Near perfect security using innovative permanent firmware encryption in each Node.
- Operates in 2.4 GHz or other available frequency bands.
- Node applications support meter reading, phase identification, fault location, vehicle tracking, etc.

Typical Performance³

- Range: >50 miles.
- Data rate per node message: 360 bps to 3Mbps.
- Path loss margin over line-of-sight at 50 miles: 18 dB to 56 dB.
- Node-messages per day: (> 15 million @ 256 byte) + (> 11,000 @ 370 Kbytes)⁴.

Origo Corporation

Origo was formed in 2003 and is currently a leader in remote phase identification for the electric utility industry. Our PhaseID Handheld Datalogger field probe allows linemen to instantly phase identify high overhead transmission and distribution lines from ground level without using an extendo stick.

Greg Piesinger has been involved in communication systems and coding for over 40 years. His recently patented Pseudo Orthogonal QPSK coding technique is a perfect modulation candidate for the short message packets used in smart grid communications due to its superior bandwidth and coding efficiency.

As a small company, Origo cannot pursue this innovative smart grid communications technology alone. Origo seeks partners, investors, alliances, team members or other parties interested in developing and marketing this technology. Please contact Greg Piesinger at 480-473-1995 or gpiesinger@origocorp.com to discuss possible collaboration on this endeavor.

¹ Patent Pending.

² Pseudo Orthogonal QPSK is described in U.S. Pat. 8,098,773 and provides turbo code BER performance without turbo code latencies.

³ System parameters: 2.4 GHz band, single channel frequency, 1 MHz DSSS chip rate spreading 64-QAM Pseudo Orthogonal QPSK symbols, 1 second message time slots.

⁴ Capacity can be increased by one to two orders of magnitude using wider BWs and additional frequency channels.