

Wireless Utility Sub-Metering System

The energy management contractor at an Army base (Honeywell) needed a reliable way to wirelessly read utility usage data (Electric and Gas) back to their central Energy Information Center. A previously deployed wireless system from Silver Spring Networks proved to be unreliable, so they approached other monitoring system providers, but none of them had a system flexible enough to meet their needs. Some of which were:

- High reliability and overall system availability
- Ability to support their existing wireless foot print
- Interface to their existing intelligent Landis & Gyr S4 Meters and collect over 20 key usage parameters (KW Cumulative, KW Instant, KWH, Phase Angles, PF, Line Freq, etc.)
- Support Pulse and Analog (4 to 20 mA and Voltage) meter types
- Future growth in number of meters and meter types



Based on these needs, ioSelect developed a system that is now deployed and has been proven to exceed all Honeywell's requirements.

The installation consists of mostly ioSelect standard products (ioPro WDL 900Mhz Spread Spectrum Radios and PowerPak 24VDC Power Supplies), but two custom devices were created to complete the system:

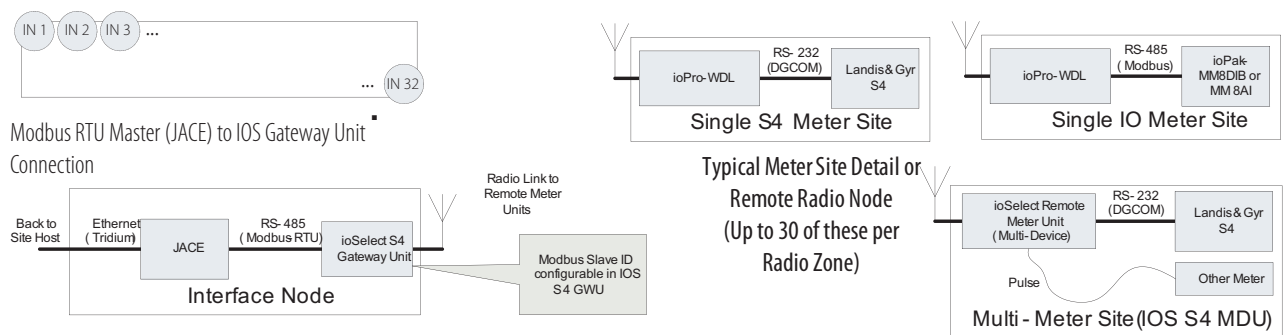
IOS S4 GWU: This is a gateway unit that is used to poll remote radios with attached S4 meters and/or IO units to collect usage data. This information is mapped to Modbus registers for access by any Modbus master device.

IOS S4 MDU: This is a special remote Multi-Device unit that allows a single node to access multiple meter types (S4 and IO based). This information is mapped to Modbus registers for access by any Modbus master device (but it is typically polled by the IOS S4 GWU over the radio network).

The Army base is a large facility (approx. 251 square miles) and because of this it was divided into 32 "Radio Zones". In each radio zone there is Tridium JACE NX box (basically an industrial PC made by a division of Honeywell) connected to one or more IOS S4 GWU (typically only 1 is needed, but multiple can be used to increase performance in large zones).

Utility Monitoring System

Overall facility divided into 32 Radio Zones, each with an IOS-S4 GWU (custom product built for Honeywell) connected to a Modbus RTU Master (JACE)



The IOS S4 GWU manages the communication to up to 30 remote radio nodes. It communicates via the correct protocol to each configured device, parses the data, and maps the results (including radio network management statistics) to Modbus registers for collection by the JACE NX. All of the JACE NX boxes are connected via the base's internal network back to the central Energy Information Center where secure servers run a variety of energy management software (Bill Reconciliation, Billing to Individual Groups and Buildings, Load Shedding, etc.)

The system is currently being deployed (approx. 70 of the estimated 300+ nodes have been installed as of 5/2007) and the system has exceeded expectations. Not only has the system provided new data that has allowed better overall energy management (Resulting in significant cost savings). It has done so with a near perfect operational record.