

## Wirelessly Connecting Remote Assets to a Centralized Control Center

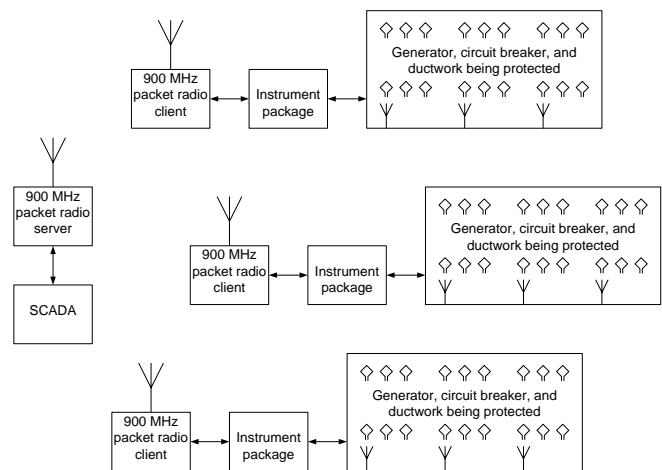


### The Challenge

Frequently, customers cannot run physical wiring from the assets that require monitoring to the nearest network access point. This could be due to cost of trenching lines, the inability to shut down a substation for communications wiring, or lack of right-of-way between the remote asset and the access point.

### The Opportunity

In one such example a client wanted to measure temperature of switchgear connections in 10KV generator circuit breakers (GCBs) and to measure temperature and humidity at key points in the three phase bus ducts between the GCBs and the switchyard transformers. The new equipment could not communicate over the control-side SCADA for security reasons. It was decided that secure, spread spectrum packet radios would form a MODBUS-RTU network in the switchyard. A MODBUS RTU to TCP/IP converter provided data to an access point at the generation plant and allowed import of the data into the corporate PI data system.



### System Details

The IntelliSAW IS-485 system measured six GCB contacts in the 5MVA breaker using passive, wireless sensors. These sensors warn against increased contact resistance due to mis-rack or corrosion. It also monitors several wired humidity and temperature sensors along the bus duct. Each IS-485 connects to a Laird CL-4490 packet radio, which communicate with the server radio in the local control room. MODBUS data is scaled to PI data tags and communicated to the corporate server.

### The Result

The utility is now able to monitor critical asset health of this generating facility from anywhere on the corporate network by accessing the PI server. Flash-overs in GCBs due to corrosion of contacts are now being avoided in this facility by predictive maintenance. A recent upgrade to monitor humidity in bus ducts is also serving to avoid flashovers from condensing humidity.