

## Orion New Zealand choose Mimomax for Substation Protection Network

Owning and operating an electricity distribution network of 8000 square kilometres (3000 square miles) of diverse geography, Orion NZ Ltd required a teleprotection solution to maintain an uninterrupted, reliable power supply. Orion's substation protection ring crosses farmland, hill and coastal terrain (including areas where stringent environmental standards need to be met) and has the following requirements:

- Ultra-low latency and phase jitter;
- The ability to be installed across difficult terrain;
- An approach which would not depend upon the installation of fibre or microwave links.

In response to these requirements, Mimomax developed an "Optimised Protection Variant" (OPV) for Orion – a variant of its MiMO product family. The results were:

- Complete substation protection in addition to SCADA and voice traffic over one radio link;
- Interference-free operation on licensed channel with up to 256 kb/s capacity (25KHz channel);
- Wide antenna beamwidth offering greater immunity to weather and path obstructions;
- Easy & low-cost integration with existing GE L90 relays.

## How does Mimomax's Teleprotection solution work?

The protection relays typically use the radio link to exchange data packets at 64kbps, containing power system voltage and current magnitude, and phase angle information. This information is used to determine whether there is an unexpected event or power loss on the line and to transmit information used to trip circuit breakers when a line fault is detected. Multiple layers of security ensure that mission-critical operations remain highly secure.

In addition to providing a low latency, low jitter 64kbps protection channel, it also provides at least 64kbps ethernet capacity over the same radio link. Our market unique high data capacity provides the ability to use residual capacity to carry other applications, such as IP/SCADA traffic with no impact on the dedicated protection circuit.



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