

FOR IMMEDIATE RELEASE

February 26, 2019

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Achieving Network Visibility through Remote Oscillography Capture

Advantages of data transfer from distributed network Reclosers

Network proliferation of distributed generation and renewable sources provides a new source of technical challenge for utility engineers and distribution network service providers (DNSPs). The traditional models of network performance are confined to performance domain of low harmonic sinusoids, modelling the traditional synchronous generator power flow methods for design and monitoring of a network. Non-linear devices and power electronics throughout the distribution grid provide a new layer of load complexity, but this challenge of understanding network flow and fault modelling can be confirmed through empirical methods using distributed intelligent network assets.

Distribution network protection assets such as Automatic Circuit Reclosers provide a grid wide view of the system. Whilst conventional SCADA provides a higher level, lower sample rate monitoring of system status and parameters, oftentimes these legacy systems miss critical details such as harmonics or power factor changes over time. This classic model of network monitoring was sufficient when load complexity was low and generation was centrally controlled, but with more distributed sources utility engineers need better data on the local network performance to detect problems before major failures occur.

To assist utility engineers with solving this challenge, NOJA Power's OSM Recloser provides a platform for oscillography capture and remote transfer of these sample files back to the control centre of the network. Oscillography

files are captured in industry standard COMTRADE format, allowing utility engineers to analyse the current and voltage waveforms throughout the network. When combined with traditional analysis methods, this empirical data allows many benefits, including:

- Improved accuracy of network modelling
- Detection of harmonic/Power Quality issues prior to equipment failure
- Fault Location information

Oscillography capture can be triggered automatically by faults at the recloser site, or by a control signal issued to the recloser. These captures can be stored locally within the ACR, ready for retrieval by engineers through either secure FTP or remote access using the Power Quality Software Suite from NOJA Power.

“Our RC10 and RC15 recloser controllers are not only a protection relay and RTU they are also a comprehensive power quality monitor and our separate PQS software can be used to make extensive power quality analysis including oscillography,” says NOJA Power Group Managing Director Neil O’Sullivan. “The power quality data is also available for remote upload using PQS including file transfer protocol (FTP) capability.”

Development of technology to address modern distribution network challenges is the core objective for NOJA Power, and through partnerships with local utilities these capabilities are available for all users of the NOJA Power OSM Recloser platform. For more information, visit www.nojapower.com.au or contact your local NOJA Power Distributor.