

Accusense Voltage Sensor Retrofit on Viper-ST

Challenge

The Utility implemented Volt-Var Optimization (VVO) and Conservation Voltage Reduction (CVR) programs that require real-time, metering class voltage sensing with 0.5% accuracy or better. These programs are designed to improve power quality and increase overall grid efficiency. Key objectives focus on reducing peak demand, distribution line losses, and carbon emissions. Metering class voltage sensing is essential to achieve the most accurate view of the grid, providing the data needed to make critical decisions and adjustments to the system.

The Utility needs additional metering points with high accuracy voltage sensing utilizing existing, SCADA enabled assets. With a significant deployment of Distributed Energy Resources (DERs), high levels of intermittent power are further challenging grid stability, expanding needs for high accuracy metering points. Heavy voltage transformers have traditionally been used for metering class voltage applications. Utilities have been seeking a compact, lightweight solution that is easier to install, combined with a preference for a higher Basic Impulse Level (BIL) rating.

Solution

G&W Accusense voltage sensor solutions were developed to easily retrofit SCADA enabled Viper-ST reclosers at DER sites. G&W worked closely with the Utility to ensure all requirements were met, from design to simplifying the installation process for the line crews. When paired with the current transformers integrated with the Viper-ST recloser, the solution serves a dual purpose power metering point and protective device.

Conclusion

The Accusense voltage sensors aligned with Utility specifications, providing a metering class voltage sensing accuracy of 0.5% and an extended BIL rating of 170kV at the 27kV voltage class. The lightweight design of four (4) pounds per sensor provided an advantage in ease of handling and installation for the linemen. Equipment and labor cost savings were realized as full installation and commissioning of a new metering point were not required. Accusense retrofit packages provide an ideal solution over metering class voltage transformers, serving as an essential component in the Utility's VVO and CVR programs. The retrofit project is now in service and the Utility has confirmed the accuracy performance of the Accusense voltage sensors comply with the 0.5% specification.



Before: Existing Viper-ST Installation



After: Accusense Retrofit Installed and in service