SurvalentONE

Distribution Power Flow & Distribution State Estimation

Provide real-time electrical characteristics of the distribution network to improve situational awareness and decision making

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Utiliverse™ ecosystem

Detect network violations and manage DERs with an accurate view of your distribution network operating parameters

A utility's success is defined by its ability to deliver consistent, reliable service to its customers. This means that the utility must be able to detect routine network issues and resolve them before they escalate into costly power outages.

Survalent's Distribution Power Flow (DPF) application assesses the electrical characteristics of a distribution network, identifies potential overloads and voltage violations, and provides an analytic, problem-solving framework.

Distribution State Estimation (DSE), a DPF add-on, increases the accuracy of power flow calculations by including SCADA measurements from outside substations and eliminating time skews between measurements.

DSE is particularly useful for improving situational awareness in networks with microgrids and distributed energy resources (DER).

Gain Greater Network Insight

DPF and DSE give control room operators a detailed view of current network conditions, empowering them to make timely, informed decisions to run the grid with minimal disruptions.

Distribution Power Flow uses substation SCADA measurements and the network model to calculate phase voltages, currents, and losses throughout the electric network.

Whenever a network parameter exceeds user-defined thresholds, DPF records a security violation, highlights the segments of the connectivity model where the issue is, and generates an alarm.

In response, operators can use the built-in switching, and load transfer studies to determine alternative network configurations that can avert an overload, alleviate poor voltage conditions, or minimize line losses. To calculate fault current scenarios at a location or to coordinate protection settings, the short circuit analysis study can be used. A restoration study is also available, allowing operators to simulate faults or loss of voltage events in the network and observe how the system reacts to each scenario. Armed with this information, they can develop a switching plan to enable the network to recover from the event.

As micro-grids and DERs such as rooftop solar panels take on a greater role in your distribution network, you can use DSE to model their behavior and monitor their impact in real time. DSE enhances the accuracy of calculated results by eliminating time skews on all measurements; it then performs a consistency check at points where voltage, current, and real and reactive power are available.

Greater Grid Efficiency

To keep the electric grid operating as efficiently as possible, you can set DPF to update on a fixed schedule or when a significant change occurs in the network. Since operators can use built-in studies in the DPF to test switching solutions before executing commands in the production environment, you can be confident that network reconfigurations will not compromise service delivery.

For extra security, you can implement mandatory checks on switching operations at key locations in the network, further decreasing the chance of implementing suboptimal configurations.

Check options include cold load pick-ups which can help estimate the probable load if a section of the line was de-energized for a length of time.

Please note that you have the option of expanding DPF's core features with SurvalentONE Volt/VAR Optimization (VVO), an advanced DMS application that maintains the grid at peak energy efficiency. DPF also operates very effectively in tandem with SurvalentONE FLISR, which can use the DPF engine to determine suitable neighboring feeders for load transfer and detect possible over/under voltage and over current scenarios, that other methods cannot detect.

If the stability of your network is being challenged by the presence of DERs, our real-time DSE application can help you respond instantly to changing conditions, including reverse power flow situations. DSE is a must have resource for efficiently managing micro-grids within the network.

Benefits

- Greater insight into your entire network
- Early warning of potential overloads and voltage violations
- Accurate assessment of line losses
- Increased grid efficiency and reliability
- Greater situational awareness of networks that include microgrid and DERs with DSE
- Ability to map any DPF calculation output into a point to display on a map or to keep for reporting/historical purposes
- Create detailed reports

Key Features

- Calculation of phase voltages, currents, and losses throughout the network
- Unbalanced three-phase power flow analysis
- Consistency checks and elimination of time skews on all measurements with DSE
- Modeling of micro-grids and DERs, with reverse power flow capability with DSE
- Map display of current network conditions with security violations highlighted
- Configurable alarm for security violations
- Switching, load transfer, short circuit analysis, and restoration studies for assessing alternative network configurations
- Optional or mandatory pre-switching validation check available before operating a device.
- Runs on a regular schedule or when significant network changes occur

Better Software.
Better Decisions.

With Survalent, you can control your critical network operations with confidence. We're the most trusted provider of advanced distribution management systems (ADMS) and substation automation for electric, water/wastewater, oil & gas, renewable energy, and transit utilities across the globe.

Over 800 utilities in 40 countries rely on the SurvalentONE platform to effectively operate, monitor, analyze, restore, and optimize operations. By supporting critical utility operations with a fully integrated solution, our customers have significantly improved operational efficiencies, customer satisfaction and network reliability. Our comprehensive substation automation solution, Survalent StationCentral, delivers advanced control and monitoring for enhanced network performance and protection.

Our unwavering commitment to excellence and to our customers has been the key to our success for over 60 years.

100% Project Delivery. We Guarantee It. Ask Us How.

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