

SurvalentONE

# Volt/VAR Optimization

Optimize grid efficiency through automated management of voltage levels and reactive power



**Survalent.**

Utiliverse™ ecosystem

## A centralized solution for optimizing energy efficiency in your network

Even utilities that rely on a sophisticated ADMS infrastructure have room for improvement when it comes to the energy efficiency of their distribution networks, particularly during periods of peak demand.

Some utilities deploy localized Volt/VAR solutions that address a narrow range of conditions without assessing the network as a single, integrated system.

### **Volt/VAR Optimization**

SurvalentONE Volt/VAR Optimization (VVO) improves energy efficiency throughout the distribution network by managing reactive power and voltage while ensuring that power factors, feeder loads, and voltages adhere to user-defined limits.

**Supported by SurvalentONE Distribution Power Flow (DPF), VVO provides utilities with a centralized solution for achieving their goal of minimizing system losses, reducing peak demand, and energy conservation.**

### **Minimize Losses**

To help utilities address specific energy efficiency goals, SurvalentONE VVO has been designed around three objective functions: maximize system efficiency, voltage reduction, and energy conservation. When loss minimization is active, the software analyzes network conditions and formulates switch orders that reduce losses in substation transformers and feeder lines.

If VVO is running in automatic mode, it issues controls via standard communication protocols. If the application is set to semi-automatic mode, it creates a switch order for the operator to review but does not implement it without explicit approval. VVO allows operators to assign a default mode of operation to each substation transformer.

### Maintaining Optimal Power Quality

The voltage reduction objective function maintains feeder voltages within a specified range by coordinating the activity of voltage regulators and load tap changers (LTCs). At a user-defined interval, the software analyzes the network and formulates appropriate switch orders, then downloads control settings to the regulators and LTCs — pending operator approval if the software is running in semi-automatic mode.

### Reduce Peak Demand

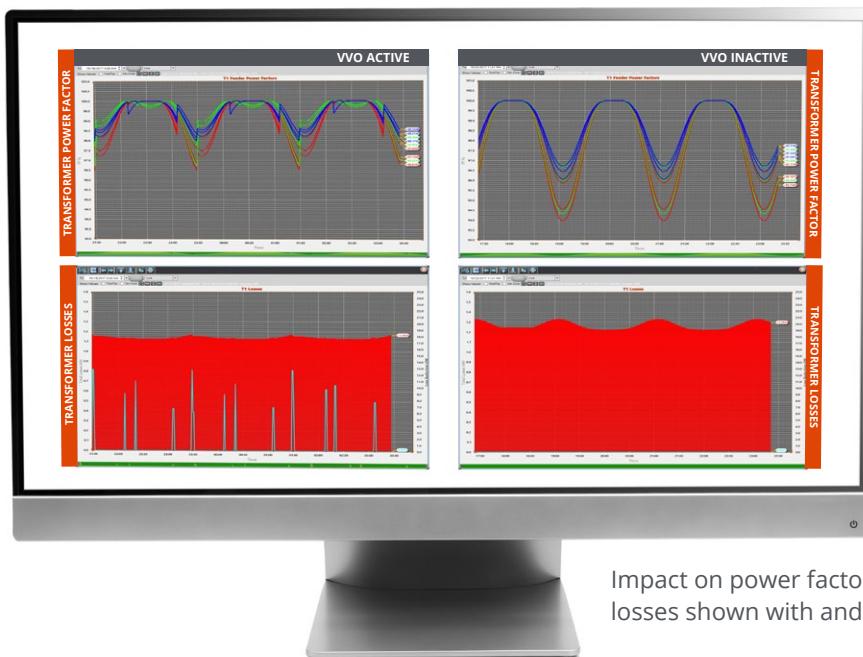
SurvalentONE VVO is capable of shaving off demand peaks using either the voltage reduction or energy conservation objective function. When VVO is set to energy conservation, it reduces demand by continually monitoring and adjusting regulators, LTCs, and capacitor banks. Lower peak demand means less risk of unplanned power outages and customer inconvenience. Changing over from manual to automated voltage demand management may also generate significant cost savings for utilities.

### Benefits

- Reduced energy losses
- Lower peak demand
- Less risk of brownouts and blackouts
- Better customer experience
- Regulates to optimal voltage profile
- Cost savings from suppliers' incentive programs
- Cost savings from automated voltage/demand management process
- Increased energy conservation

### Key Features

- Objective functions: loss minimization, voltage reduction, and energy conservation
- User-defined schedule for VVO activities
- Two modes of operation: automatic and semi-automatic
- User-defined constraints: feeder voltage range, feeder load limits, and power factor limits (substation and feeder)
- Device communication via standard protocols such as DNP and Modbus
- All VVO operations written to a switch order for operator review



Impact on power factor and transformer losses shown with and without VVO.

## **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.**

# **Survalent.**

info@survalent.com • survalent.com • 905-826-5000

**Utiliverse™ ecosystem**