

# SVC-20

## Low Voltage, Single-Phase, 50/60 Hz, 20 kVAR Pole-mounted Static VAR Compensator

The Gridco Systems Low Voltage (LV), Single-Phase Static VAR Compensator™ (SVC) represents a new class of agile grid infrastructure designed to enable a more flexible and resilient distribution network. It provides distribution utilities with a new tool to sustain voltage levels above regulated limits and implement successful Conservation Voltage Reduction/Volt-VAR Optimization (CVR/VVO) initiatives that cost-effectively improve energy efficiency, manage peak demand, and improve overall system reliability.

The SVC is a lightweight, standalone hardware system designed for outdoor overhead network installation. The SVC is shunt-connected and deployed on the secondary side of distribution transformers with the flexibility of being mounted to the same pole, to an adjacent pole, or on a pole farther down along the secondary. Its ease of installation avoids the long delays, high costs, and other complexities associated with conventional approaches, such as reconductoring, while extending the operational usefulness of existing assets. The SVC may be deployed for single phase (230V, 240V) or three phase (208V delta / 277V wye) applications. It provides targeted voltage boost at specific locations along a distribution feeder.

Featuring a simple and safe, switching design combined with advanced control algorithms, the SVC is a modular hardware system that is flexible, cost-effective and reliable. Part of the Gridco Systems emPower™ Solution, the SVC works in conjunction with existing medium voltage (MV) equipment to give utilities more granular control and ensure regulatory (ANSI/IEC) voltage range compliance throughout the circuit. Integrated, field-upgradeable “VAR modules” simplify grid planning, operations and maintenance for field technicians so they can add/replace capacity whenever and wherever necessary.

### Modular Ruggedized Design

The SVC-20 boosts voltage for customers on the LV secondary, leveraging up to 20 kVAR of reactive power capacity. The amount of reactive power needed for a given level of voltage boost will depend on the impedance at the deployment location. The SVC-20 supports the installation of individual VAR modules, each supplying roughly 5 kVARs. Distribution engineers can choose to configure the units fully or partially populated with VAR modules to optimize initial installed CapEx spend and to leverage intelligent switching that manages device life and provides unique failover capabilities to increase system availability without incurring OpEx. Field upgrading an existing unit from 10 kVAR to 20 kVAR to counteract voltage drop caused by new load sources can be done in a matter of minutes.

The SVC is NEMA 4X rated to withstand outdoor environments and designed with a robust, lockable door for easy field accessibility. It features flexible field communications and surge suppression modules. The SVC has a 15-year design life, maximizing investment value and making it a key element of a modern utility distribution system.



### KEY FEATURES

- **Low Voltage Active Boost:** use the CVR control mode to actively inject reactive power to increase voltage above a configurable threshold, maintaining voltage assurance during CVR and/or high load conditions
- **Reactive Power Compensation:** use the VAR control mode to consistently inject a specified amount of reactive power along the LV secondary where needed for key customers
- **Line Voltage Monitoring:** validate CVR program performance with interval data collected by integrated voltage sensors
- **Operational Flexibility:** autonomous set-and-forget, locally manage, and/or remotely manage as part of an overall fleet of Gridco Systems SVC and IPR devices
- **Modularity:** cost effective and flexible architecture simplifies future planning by facilitating field upgradable components including VAR modules, utility-specified communications, and surge suppression
- **Maintenance-Free Design:** the SVC operates with no moving parts, eliminating wear-and-tear associated with conventional electromechanical equipment

## Flexible Fleet Management

The SVC operates autonomously or under centralized administration. Using the built-in control panel, individual units can be field-managed for commissioning and system upgrades. Users can also coordinate the combined fleet of SVC and Gridco Systems In-Line Power Regulator™ (IPR) / Power Regulating Transformer™ (PRT) units deployed via integration with the Gridco Systems Grid Management and Analytics Platform™ (GMAP).

## Beyond “Business as Usual”

Conventional business-as-usual methods to correct voltage drop along the secondary distribution network include reconductoring and upsizing the distribution transformer. These methods, however, have limited effectiveness, are less cost-effective, and do not provide any awareness, intelligence or agility. The SVC helps utility engineers solve a range of common problems, while gaining additional benefits, including:

- Improving CVR/VVO efficiency program execution
- Enabling grid-side demand response to lower peak generation costs
- Decreasing total installed cost (material, labor, time, etc.)
- Gaining additional visibility and active control at the grid edge

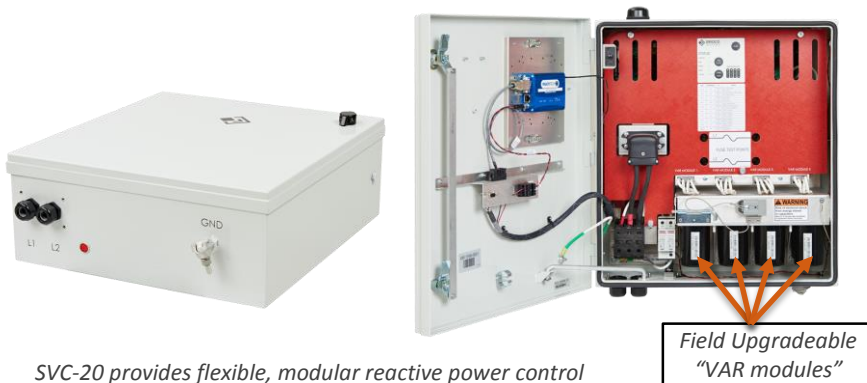
## APPLICATIONS

### Voltage Assurance

Maintaining voltage compliance above service range limits is an evolving challenge given load growth and the increasing age and complexity of the distribution grid. The SVC effectively boosts voltage when and where needed to eliminate customer complaints and assure compliant service voltage delivery.

### CVR/VVO

The implementation of CVR/VVO programs comes with the requirement for utilities to reduce overall feeder voltage while maintaining power delivery to all customers in compliance with standards. MV solutions, even when well-engineered and actively controlled, are often not granular enough to maximize CVR benefits. If large secondary voltage drops are limiting program success, the voltage boost provided by the SVC at specific LV locations can be the key.



SVC-20 provides flexible, modular reactive power control

## SVC-20 SPECIFICATIONS

Phase	Single / three
Frequency	50 / 60 Hz
Rating	23.2 kVAR @ 277V 17.4 kVAR @ 240V
Modularity	4 plug and play VAR modules
Form	Pole-mounted
Line Voltage	208V, 230V, 240V, 277V
Line Voltage Range	120V – 306V
Control Modes	CVR or fixed VAR
Voltage Boost	Typically 1-3% (depending on transformer/ line impedance)
Sensing	Line voltage kVAR injected Injected current Temperature
Design Life	> 15 years
Rated Switching Operations	> 5 million
Operating Temperature	-40° to 55° C
Cooling	Passive air
Enclosure	NEMA-4X, aluminum
Operation / Management	Autonomous, local, remote via GMAP
Communication	Cellular modem Utility specified radio
Dimensions	22”H x 20”W x 8”D
Weight	45 lbs.