



REVOLUTIONIZING THE WAY THE WORLD USES ELECTRICITY®

Dynamic Reactive Power Compensation

Utilizing State of the Art Power Electronics Technology

Benefits

- Provides steady-state voltage regulation
- Delivers superior transient response
- Improves grid reliability by stabilizing voltage
- Generates/absorbs VARs dynamically
- Modular construction enables quick deployment and future flexibility
- More compact and less costly to install than competing devices
- Highly efficient resulting in lower operating costs than other devices

The American Superconductor (AMSC) dynamic VAR (Volt Ampere Reactive) system is a powerful, cost-effective solution that dynamically stabilizes and regulates voltage on power transmission grids and industrial operations. Utilizing AMSC's proprietary PowerModule™ power electronic converters, D-VAR® systems detect and instantaneously compensate for voltage disturbances by injecting leading or lagging reactive power at key points on transmission and distribution grids. Each D-VAR solution is customized to meet specific customer needs and includes inherent flexibility to accommodate changing grid conditions.

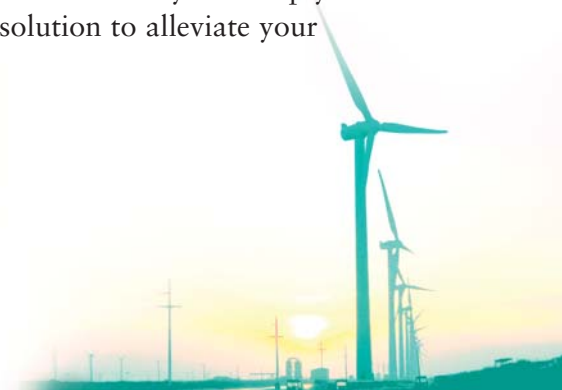


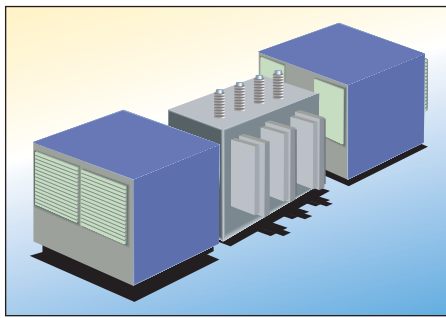
D-VAR systems are highly scalable and mobile solutions that allow utilities to install them in their power grid at locations that need the greatest amount of VAR support.

Transfer capacity of a power grid is often limited due to voltage instability. D-VAR systems provide a proven solution to address voltage stability issues and relieve associated constraints. D-VAR systems can be a valuable tool in increasing the power transfer capacity of the grid.

D-VAR systems allow wind farms to meet utility interconnection requirements including low voltage ride through (LVRT), voltage regulation and power factor correction. D-VAR systems can also mitigate transient voltage events and "soft switch" capacitors which extends the life of wind turbine gearboxes, switches and other components.

AMSC's transmission planning team has over 75 years of experience in transmission and distribution planning. This team will help you analyze your system by performing studies for low voltage, voltage stability, transfer capability and power quality problems. They will help you develop the least costly, most effective solution to alleviate your short and long term problems.





Example of an 8 MVAR D-VAR system which is 30 feet long by 11 feet wide. D-VAR systems are modular and compact and accommodate areas with restricted space availability.

Specifications

Connection:	Medium Voltage (up to 46 kV)
Frequency:	50 or 60 Hz
Continuous Rating:	±2.0 to 100s of MVARs
Transient Overload Rating:	2.67 time continuous for up to 2 seconds (application-specific)
Response Time:	Sub-cycle
Inverter:	IGBT, 4 quadrant, stacked units, 4 kHz switching frequency, rated at 1 MVAR, continuous duty
Output:	Independent phase control
Harmonics:	Per IEEE 519
System Monitoring:	Digital recording of system action, multiple inputs, alarms and warning signals
Ambient Temperature:	-50°C to +40°C (above 40°C derating applies)
Other:	<ul style="list-style-type: none"> Mobile configuration for quick deployment Minimal on-site installation Compact installation for minimal footprint Remote monitoring Environmentally benign Ambient air cooling Current source not subject to square of voltage de-rating factor at lower voltages as in other systems based solely on capacitors

Product Applications

Reactive Compensation	Transmission and Distribution Systems
Steady State Voltage Regulation	Long Radial Delivery Systems, Wind Farms
Increasing Grid Capacity	Transmission Systems
Reduce Reliability Must Run Generation	Transmission and Distribution Systems
Voltage Sag Mitigation	Large Industrial Facilities, Wind Farms



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