

# CSD100

## Point-on-Wave Controller

GE Vernova's CSD100 is an advanced Controlled Switching Device for high-voltage AC circuit breakers. The ability to mitigate switching transients is becoming a key issue for today's grids as the generated stresses can lead to power quality problems and accelerated aging. The CSD100 provides utilities with a cost-effective, streamlined solution to protect utility assets and improve system reliability by minimizing risks and operation costs.

### Challenges

As our power systems evolve and we bring more intermittent renewable generation online, these power sources can cause new operational challenges for power system operators including:

- Grid instability
- Daily load variation, requiring reactive power compensation
- Need to transmit large blocks of energy since power sources are often distant from main consumption centers

Challenges with digitization of the grid include:

- Moving toward digital substations
- Acquiring and communicating data from the primary equipment
- Managing and operating substations with large amounts of data

### Reliable and Versatile

- Switching performance evaluation
- High-speed transient recorder
- Multiple load switching
- Built-in cybersecurity features in line with the latest NERC, IEC, and IEEE standards
- Flexible mounting options (DIN Rail or 19" bay mounting)



### Safe Connectivity of Intermittent Generation

- Voltage dip reduction
- Transformer stress limitation

### Safe Switching of Reactive Power Compensation

Drastic stress reduction on equipment for compensation:

- Capacitor Banks
- Shunt Reactors

### Increased Reliability of Overhead Lines (OHL)

- Secured closing and auto-reclosing
- Improved utilization of overhead line designs
- Improved operational limits of insulation levels
- Reduction of surge arrester stress

### Advanced Communications

- IEC 61850
- Extensive data acquisition and storage capabilities
- Simplified integration into digital substations and associated secondary systems
- Secure, web-based HMI for situational awareness and simplified operational management



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## Selection Guide

Managing the connection to the grid, the CSD100 combined with a properly configured circuit breaker significantly reduces grid disturbances and allows independent power producers to simplify their switching procedures:

- Limitation of voltage dip at grid connection
- Containment of inrush current at power transformer energization
- Reduced electrical stresses on power transformers, increasing asset life



## Safe Switching in Reactive Power Compensation

Capacitor banks and shunt reactors help to stabilize the grid and improve the power factor. Acting as reactive power generators, their switching needs to be controlled precisely to a limit associated with electrical transients:

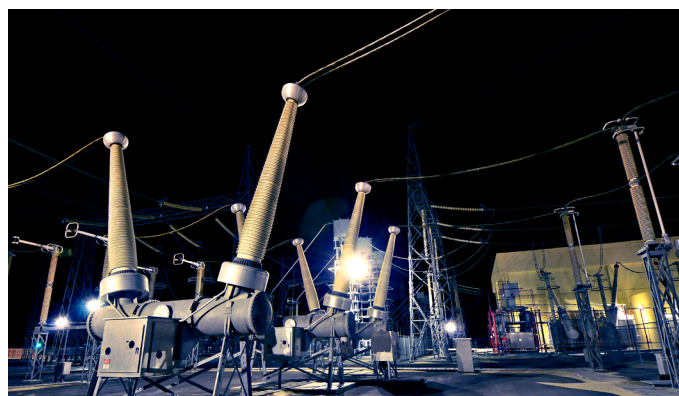
- Significant stress reduction on capacitor banks
- Significant stress reduction on shunt reactors

## Enhanced Overhead Lines

Generation hubs are often distant from main consumption centers. Large amounts of power are transferred through very long lines. Overvoltage phenomena are generated by switching operations and amplified by the distance. The conventional approach, consisting of adding a pre-insertion resistors to the circuit breaker, can be effectively replaced by the CSD100.

Advantages include:

- Safe auto-reclosing operations
- Reduction of required insulation level
- Compact overhead lines design



## Asset Performance Management

With extensive data acquisition and storage capabilities, the CSD100 allows for extensive monitoring and improved switching to protect equipment. Together with its digital communication abilities, the CSD100 plays a key role in your Asset Performance Management (APM) strategy.

For more information, visit  
**[governova.com/grid-solutions](https://governova.com/grid-solutions)**

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