GE
Grid Solutions

CSD100

Controlled Switching of Overhead Lines

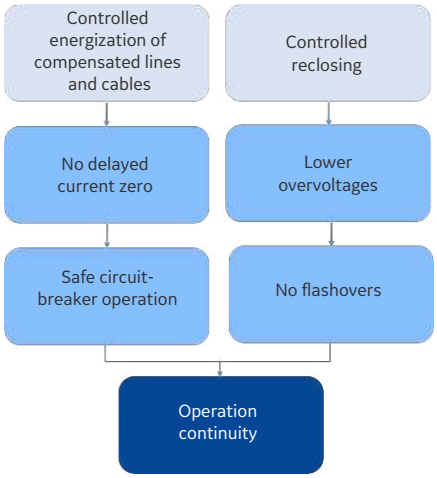
CSD100 is an advanced controlled switching device for high voltage AC circuit-breakers for any kind of application.

Challenges

Power generation sources are often located far from main consumption areas. As a result, large amounts of energy need to be transmitted over long distances. The random circuit-breaker switching of no-load lines generates a travelling voltage wave which, when reflected from the open end of the line, provokes an over-voltage along the length of the line. Also, auto-reclosing of the line circuit-breaker causes even larger over-voltages than simple closing because of the increased probability that a line has retained a trapped charge with the opposite polarity.

Safe Switching of Overhead Lines

CSD100 is a cost-effective solution to limit overvoltage during closing and auto-reclosing of line circuit-breakers.



Securing Your Primary Equipment

- With extensive data acquisition and storage capabilities, the CSD100 allows for extensive monitoring and optimized switching in order to protect equipment. Together, with its digital communication abilities, the CSD100 plays a key role in your asset performance management strategy
- CSD100's design simplifies substation integration
- Built-in cybersecurity features, in line with the latest NERC, IEC, and IEEE standards, ensure a high security level

CSD100 optimizes line design and generates important savings at the conception stage. The value of over-voltages directly determines the insulation and protection levels of the lines, as well as their cost.

Improved Overhead Lines and Cables Management

- Safe closing and auto-reclosing
- Optimization of insulation levels
- Optimization of overhead lines designs
- Reduction of surge arrestor stress

Advanced Communications

- IEC 61850-8-1
- Easy integration into digital substation
- User-friendly Web HMI

Reliable and Versatile

- Switching performance evaluation
- High speed transient recorder
- Multiple load switching feature
- Assisted commissioning mode
- DIN rail or 19" bay mounting

Grid Solutions' Advantage

- Expert high-voltage original equipment manufacturer solution including circuit-breaker and controlled-switching device
- Strong experience, fourth generation of point-on-wave controllers

Switching Transients Mitigation

Load	Operation	Primary goal	Mitigation principle
Transmission lines	Closing	Reduce switching overvoltages	Closing at zero-voltage across CB terminals
		Prevent from current zero missing	Closing at voltage peak
	Opening	Reduce restrike or reignition risk (line characteristics dependent)	Switching out with optimum arcing time
Transmission cables	Closing	Prevent from current zero missing	Closing at voltage peak
	Opening	Reduce restrike or reignition risk (line characteristics dependent)	Switching out with optimum arcing time

CSD100 Self-Adaptation for High Accuracy

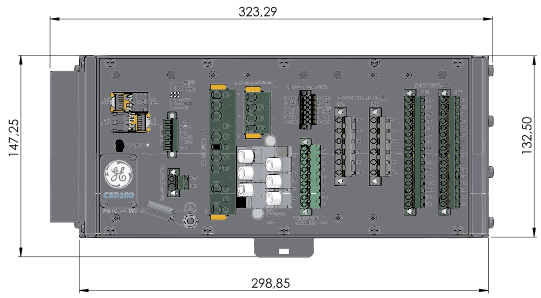
Used with an advanced circuit-breaker, CSD100 takes circuit-breaker conditions into consideration (including ambient temperature, DC control voltage, driving pressure of hydraulic mechanisms, circuit-breaker idle time, circuit-breaker long-term operation time drift, ...). CSD maintains the highest possible switching accuracy.

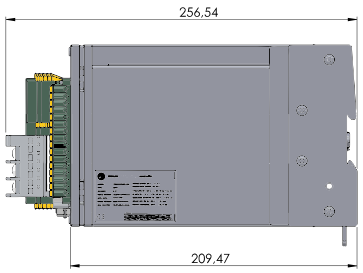
General Ratings

Description	Value
Weight	5.8 kg (12.8 lbs) with rack mounting brackets
Operation temperature range	-40 to +55°C (continuous) / -40 to +70°C (16 h)
Enclosure class	IP5x
Product electrical safety	IEC 60950-1; IEC 61010-1; IEC 60255-27
EMC compliance	IEC 61000-6-5; IEC 60255-26; EN 55032
Power consumption	< 30 W
Switching time resolution	< 0.01 ms
Transient data acquisition	40 kHz
Input transducer interfaces	4 x 4-20 mA, 24 V, 2 or 3 wires
Digital communication interface	100 Mbits/s/ or/and 1 Gbit/s SFP transceiver x 4 (RJ45 x 2 / LC optic fiber x 2)
Alarm signaling	2 relays available for signaling urgent and non-urgent alarms
LEDs signaling	6 LEDs available to deliver status of the controller (power supply, ready to operate)
Switching performance evaluation	Accuracy of the controlled closing and controlled opening operations, within the required tolerance
Power quality indicators	Voltage dip, peak current, current asymmetry
Counter	Number of controlled and random operations

Dimensions (mm)

Example for DIN rail mounting (installation in low voltage cabinet of the circuit-breaker)





Other mounting possibility
19" rack front panel
Optional: Local HMI on request

For more information please contact
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