



# CSD100

## Point-on-Wave Controller for Multiple Load Switching Applications

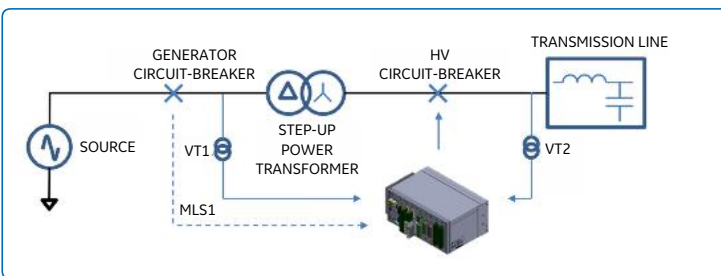
### Challenges

In many substation architectures, a single circuit breaker is responsible for operating different or variable loads. Maintaining proper performance of this device while trying to maximize asset life and lower operational costs is a real challenge for many substation operators and asset managers.

### Advanced Controlled Switching for HV Circuit Breakers

GE has developed for the CSD100 a multiple load switching feature, allowing to use one single device per circuit-breaker.

- Whatever the substation architecture (layout with tie-circuit breaker)
- Whatever the operating mode, for example:
  - Power plant blackstart from the grid (line or cable)
  - Compensated line or only grid compensation with shunt reactor
  - Variable neutral position (or grounding) for compensation asset



Example of Multiple Load Switching for HV circuit-breaker. Line switching use of power plant blackstart

The switching strategy is defined by the positions of the substation equipment (circuit-breakers, disconnecter switches ...).

GCB position	MLS1	Switching program	Synchronizing voltage
CLOSED	1	LINE	VT1
OPEN	0	TRANSFO1	VT2

## Controlled Operations of Single Circuit-breaker Switching Different Loads

- Useful for any kind of substation architecture/configuration
- Switching strategy automatically adapts to the real time

## Advanced Communications

- IEC 61850-8-1
- IEC 61850-9-2LE/IEC 61869 (upcoming)
- DNP3 (upcoming)
- Easy integration into digital substation
- User-friendly Web HMI

## Reliable and Versatile

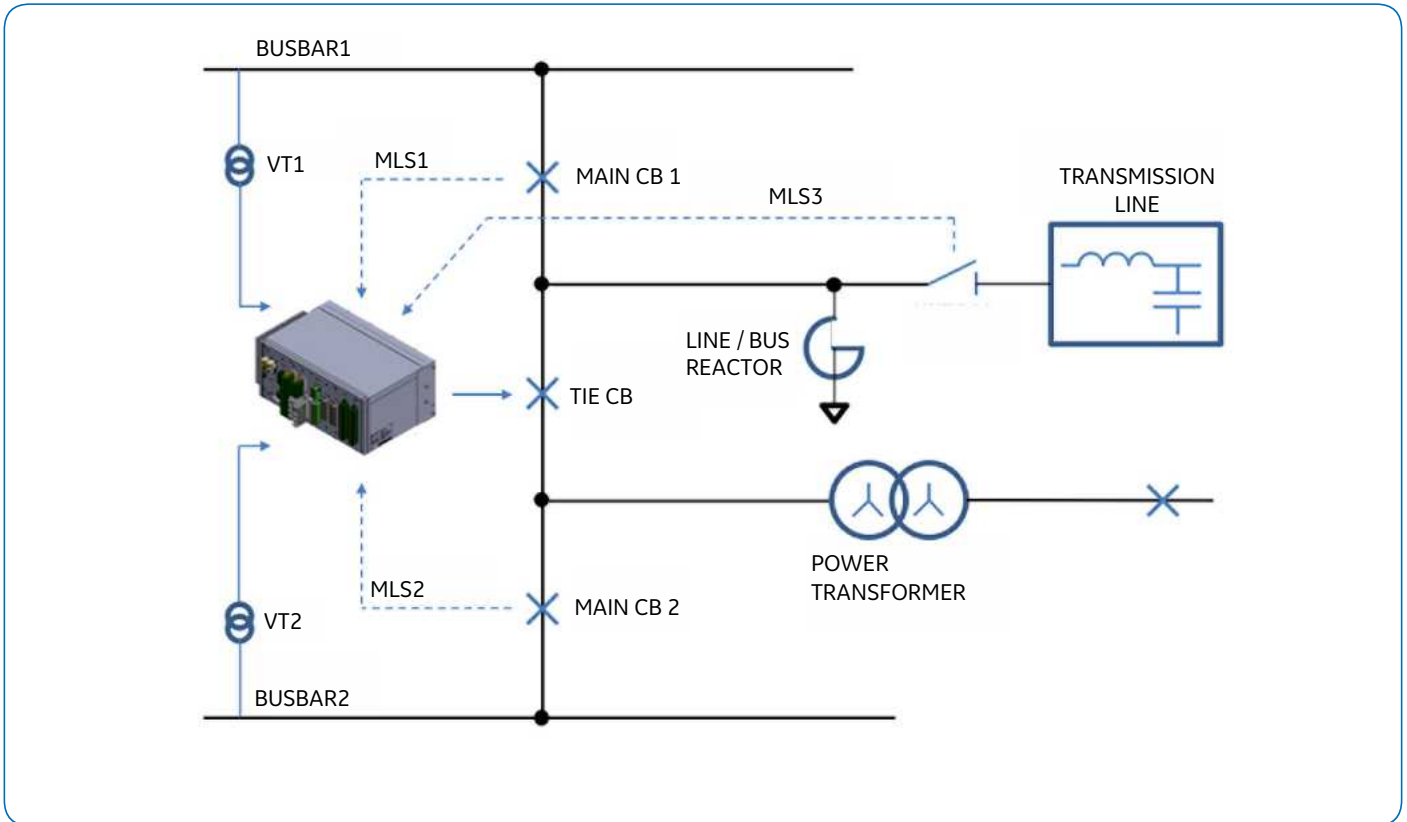
- Switching performance evaluation
- High speed transient recorder
- Assisted commissioning mode
- DIN rail or 19" bay mounting

## 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 controller



## Tie-circuit breaker example



In above example, circuit-breaker may be used to switch a line, or a reactor, or a power transformer

MLS1	MLS2	MLS3	Switching program	Synchronizing voltage
0	0	0	NA	NA
0	0	1	NA	NA
0	1	0	REACTOR	VT2
0	1	1	LINE	VT2
1	0	0	TRANSFORMER	VT1
1	0	1	TRANSFORMER	VT1
1	1	0	X	X
1	1	1	X	X

The positions of the substation apparatus (circuit-breakers, disconnector switches...) define the load to switch. The CSD100 selects the programmed switching strategy accordingly.

For more information please contact  
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### Worldwide Contact Center

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