



# Digital Energy

## System Protection & Control

Flexible programmable controller platform to meet complex system challenges

### REMEDIAL ACTION, SPECIAL PROTECTION SCHEMES, SYNCHROPHASORS, WAMPAC

Flexible platform capable of implementing diverse control schemes with guaranteed response time. Capable of evolving throughout the project lifecycle to meet the most challenging power system issues.

#### KEY OUTCOMES

- Prevent blackouts by responding in the early stages of grid stability issues, quickly returning the grid to a safe state
- Management of system constraints through automatic control. More efficient use of system capacity without sacrificing reliability
- Discrete and continuous control to improve grid stability. Response based on synchronized wide-area signals

#### KEY FEATURES

- Create control applications based on a wide range of data sources including IEEE C37.118, IEC 61850 MMS & GOOSE, IEC-60870-104 and MODBUS
- IEC 61131-3 PLC engine compliant
- Low latency response due to hard real-time, fully deterministic platform with execution cycle from 4ms to 20ms
- Graceful degradation due to propagation of signal metadata, allowing for dynamic adjustment of controller performance based on data quality and availability

#### OVERVIEW

### System Protection & Control: Fast, flexible, targeted grid management

As system inertia reduces, system frequency and voltage profiles are becoming more volatile. Conventional control systems are having to respond faster to manage system events with the disadvantage that these controllers themselves can introduce new stability challenges that have to be managed. The additional uncertainty related to the response of newer power-electronic controlled generation creates a range of complex and dynamic challenges for system operability.

Fast, discrete, automatic control is becoming essential in many power systems to support system operation and manage disturbances without creating new stability challenges for system operators. Synchrophasor-based control enables fast, targeted remedial action to manage system disturbances. Unlike conventional SIPS, phasor-based control is system-responsive and is inherently self-limiting, reducing the level of response required to manage system events.

GE's PhasorController platform provides a modular PLC environment capable of supporting a diverse range of inputs, including synchrophasors, as well as supporting a range of industry standard protocols. The platform offers a guaranteed response time, is capable of evolving over time, and can be further extended and optimised to manage emerging power system issues.



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