

# Relays and Meters Protection & Control 650 Family

Advanced Protection Control and Monitoring System

### Key Benefits

- Unique built-in control features - Comprehensive protection plus programmable logic
- Flexible and cost effective control for complex systems - Use IEC compatible programmable logic to customize the functionality of your protection & control system to address unique, site specific applications
- Human machine interface (HMI) - Standard backlit LCD display with 4 x 20, optional 16 x 40 (240 x 128 pixels) graphical LCD, programmable buttons, and rotary knob for selecting setting menus, and submenus.
- Minimize replacement time - Modular with card draw-out construction
- Reduce troubleshooting time and maintenance costs - IRIG-B time synchronization, event reports, waveform capture, data logger
- Cost Effective Access information - Via multiple protocols, through standard RS232, & RS485, Ethernet Ports.
- Optimal integration flexibility via open standard protocols - Modbus RTU, DNP 3.0 Level 2, IEC60870-5-104, IEC61850
- Minimize communication down time - Reliable redundant Ethernet Communication ports with 10/100BaseTX, 100BaseFX with ST connectors, and optional double 100BaseFX, with ST connectors
- Complete asset monitoring - Full metering including demand & energy
- Follow technology evolution - Flash memory for product field upgrade

### Applications

- F650: Management and primary protection of distribution feeders and bus couplers
- F650: Backup protection of busses, transformers and power lines
- G650: Packaged generator mains failure detection
- G650: Distributed generation management device
- G650: Reliable Distributed Generation interconnection protection system
- W650: Wind turbine protection, control and monitoring
- W650: Distributed generation grid interconnection device

### Features

#### Protection and Control

- Up to 32 Programmable digital inputs
- Up to 16 digital outputs
- Trip Circuit Supervision
- Redundant power supply option
- Configurable PLC logic according to IEC 61131-3
- Fully configurable graphic display HMI interface
- Alarms panel



### Features (continued)

#### Monitoring and Metering

- Energy metering
- Demand metering
- Trip circuit monitoring
- Oscillography
- Data logger
- Sequence of event
- Self diagnostic

#### User Interface

- Large graphic (16x40) or regular (4x20) character display
- Easy to use control via Shuttle key
- Front RS232
- Rear wire 10/100BaseTX Ethernet for LAN connection.
- Rear wire CAN bus port (OPEN CAN protocol - W650)
- Optional fibre optic 100BaseFX Ethernet, single or redundant.
- Optional rear RS485 port
- 1 ready LED and 15 programmable LED indicators
- EnerVista® Integrator providing easy integration of data in the 650 relay into new or existing monitoring and control systems
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