Phasor Measurement Unit RES670
Relion® 670 series Ver. 2.1

Features
• Fully compliant with IEEE C37.118-2011, including the amendment C37.118.1a-2014
• Single-phase phasor data streaming in addition to positive, negative and zero sequence components
• Multiple synchrophasor data streaming from one device that duplicates the reporting capability
• Redundant time synchronization capability using both built-in GPS and IRIG-B modules
• Support for several and simultaneous TCP/IP and UDP/IP clients
• Fully IEC 61850 compliant, Edition 1 and Edition 2
• Extensive I/O capability
• Extensive self-supervision including analog channels
• Six independent parameter setting groups
• Ethernet interface for fast communication with PC and Phasor Data Concentrator (PDC)
• Large HMI for visualization of single line diagrams
• Settings via IEC 61850 for some protections
• Cyber security support for compliance to NERC CIP and IEC 62351-8 with Centralized Account Management

Pre-configured solutions
• Pre-configured and type-tested solutions including default settings for:
  – 3 bays, single busbar
  – 6 bays, double busbar

Most important protection functions
• Impedance
  – Power swing detection
  – Out of step protection
• Voltage
  – Two step overvoltage protection
  – Two step undervoltage protection
• Current
  – Four step phase overcurrent protection
  – Four step residual overcurrent protection
  – Four step directional negative phase sequence overcurrent protection
  – Sensitive directional residual overcurrent and power protection
  – Thermal overload protection, one time constant, Celsius
  – Thermal overload protection, one time constant, Fahrenheit
• Power functions
  – Directional under- and overpower protection
• Secondary system supervision
  – Fuse failure supervision
  – Current circuit supervision
• Frequency functions
  – Under- and overfrequency protection
  – Rate-of-change frequency protection
  – Frequency time accumulation protection
• Multi-purpose function
  – Multi-purpose filter with possibility to detect, alarm, and trip for special operating conditions, e.g. SSR
  – General current and voltage protection

Control functions
• Apparatus control
• Selectable operator place allocation
• Software based multiple position selector switches
Logic
- Tripping logic
- Trip matrix logic
- Extensive logic block library for application customization

Monitoring
- Adjustable breaker monitoring with capability to handle multiple breaker types
- Disturbance recorder and disturbance report
  - 100 disturbances
  - 40 analog channels (30 physical and 10 derived)
  - 128 binary channels
- Event list for 1000 events
- Event and trip value recorders
- Event counters
- Running hour meter
- Supervision of AC and mA input quantities
- Gas medium supervision
- Liquid medium supervision
- Large HMI with virtual keyboard, function push buttons, and 45 three color LED indications with alarm descriptions

Measurements
- U, I, P, Q, S, f and \( \cos \phi \)
- Frequency measurement with accuracy of ± 2 mHz
- Inputs for mA measuring

Metering
- Energy calculation and demand handling
- Pulse counting support for energy metering

Communication
- Protocol reporting via IEEE 1344 and C37.118
- IEC 61850-8-1 including GOOSE messaging
- IEC 62439-3 parallel redundancy protocol (PRP)
- IEC 61850-9-2 LE Process bus
- IEC 60870-5-103 serial communication via RS484
- DNP 3.0 protocols

Engineering, testing, commissioning, and maintenance
- Protection and control IED manager PCM600
- Forcing of binary outputs for faster and easier test and commissioning
- Flexible product naming by mapping utility IEC 61850 model to that of 670 series model

Hardware
- 1/1 x 19", 3/4 x 19" or 1/2 x 19" 6U height case selected according to the number of required I/O modules
- Power supply modules from 24 to 250 V DC ± 20%
- TRM module with 12 analog inputs and optional measurement transformers
- Up to 14 I/O modules in 1/1 x 19" case
- Binary input module with 16 inputs
- Binary output module with 24 outputs
- Static binary output module with 6 static and 6 change-over outputs
- Binary input/output module with 8 inputs and 12 outputs
- mA input module with 6 transducer channels
- Connector types: compression type or ring-lug type
- Accurate time-synchronization through GPS or IRIG-B
- Supports highest EMC requirements
- Independent laboratory certified

Accessories
- COMBITEST test system
- COMBIFLEX auxiliary relays
- Mounting kits

Documentation
- Role based documentation for high efficiency in engineering, commissioning, operations and maintenance

Technical details are available in the RES670 Product Guide.

For more information please contact:

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