Breaker protection REQ650
Relion® 650 series Ver. 2.1

Product features
- Feeder and circuit breaker backup protection
- Extensive self-supervision including analog channels
- Six independent parameter setting groups

Communication features
- Fully IEC 61850 compliant, Edition 1 and Edition 2
- IEC 61850-5 Edition 2 GOOSE performance class P1 (3 ms)
- IEC 62439-3 parallel redundancy protocol (PRP)
- Ethernet interface for fast and easy communication with a PC and substation automation system (SAS)

A configured and type-tested solution
- A ready-made application for a breaker bay with back-up protection functions, for single or three phase tripping

Most important protection functions
- Current
  - Instantaneous phase- and residual overcurrent protection
  - Four-step positive (phase), zero (residual) and negative sequence overcurrent protection with definite and inverse time characteristics
  - Thermal overload protection
  - Breaker failure protection
  - Stub protection
  - Broken conductor check
- Voltage
  - Two step under-, over-, and residual overvoltage protection
  - Loss of voltage check
- Secondary system supervision
  - Fuse failure supervision
  - Current circuit supervision
- Multipurpose function
  - General current and voltage protection

Monitoring
- Disturbance recorder and disturbance report
  - 100 disturbances
  - 40 analog channels
  - 128 binary channels
- Event list with 1000 events
- Event and trip value recorders
- Event counters
- Circuit breaker monitoring
- Gas / liquid medium supervision
- Running hour meter
- Large HMI with virtual keyboard, function push buttons, and three color LED indications with alarm descriptions
Logic
- Tripping logic
- Trip matrix logic
- Extensive logic block library for application customization

Control functions
- Synchrocheck, energizing check and synchronizing
- Autorecloser
- Control for up to 20 additional switching devices through software based multiple position selector switches
- Selectable operator place allocation

Measurements
- U, I, P, Q, S, f and cos ϕ
- Frequency measurement with accuracy of ± 2 mHz

Metering
- Energy metering function for energy statistics
- Pulse counting support for energy metering

Communication
- IEC 61850-8-1 including GOOSE messaging
- IEC 62439-3 parallel redundancy protocol (PRP)
- IEC 60870-5-103 serial communication
- DNP 3.0, LON, and SPA protocols

Engineering, testing, commissioning, and maintenance
- Protection and control IED manager PCM600 for configuration, parameterization, online debugging and disturbance handling
- Forcing of binary inputs and outputs for faster and easier test and commissioning
- Flexible product naming by mapping utility IEC 61850 model to that of 650 series model

Hardware
- 1/2 x 19", 6U height case
- Power supply module from 24-60 or 90-250 V DC ± 20 %
- TRM input module with 12 analog inputs
- Up to three I/O modules
  - Binary input module with 16 inputs
  - Binary output module with 24 outputs
  - Binary input/output module with 8 inputs and 12 outputs
- Compression or ring-lug connector types for analog inputs
- Accurate time-synchronization through SNTP, DNP 3.0, IEC 60870-5-103, 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 REQ650 Product Guide.

For more information please contact:

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