Product features

- A dedicated bay controller with monitoring and control integrated in one IED
- Extensive self-supervision, including analog channels

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

A configured and type-tested solution

- A readymade application for a single breaker and double busbar switchgear configuration, with complete freedom to adjust the application.

Control functions

- Control and interlocking for up to 10 switching devices with IEC 61850 data model
- Control for up to 20 additional switching devices through software based multiple position selector switches
- Ready to use interlocking for different switchgear arrangements
- Several alternatives for reservation functionality
- Synchronizing, synchrocheck and energizing check
- Selectable operator place allocation

Monitoring

- Disturbance recorder with disturbance report
  - 100 disturbances
  - 40 analog channels
  - 352 binary channels
- Event list for 1000 events
- Event and trip value recorders
- Fault locator
- 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
• Extensive logic block library for application customization

Measurements
• U, I, P, Q, S, f and \( \cos \varphi \)
• Frequency measurement with accuracy of \( \pm 2 \text{ mHz} \)

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, SPA, LON 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 \( \pm 20\% \)
• 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 REC650 Product Guide.

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