Line distance protection REL670
Relion® 670 series Ver. 1.2

Features
- Fully IEC 61850 compliant
- Protection, monitoring and control integrated in one IED
- Extensive self-supervision including analog channels
- Six independent parameter setting groups
- Large HMI for visualization of single line diagrams
- Ethernet interface for fast and easy communication with PC
- Signal matrix for easy configuration of binary and analog signals
- User management and authority handling

Pre-configured solutions
- Pre-configured and type-tested solutions including default settings for:
  - Single breaker with selective single- or three-phase tripping
  - Multi-breaker with selective single- or three-phase tripping
  - 1 1/2 circuit breaker arrangements with selective single- or three-phase tripping
  - Solidly or high impedance earthed systems

Most important protection functions
- 5 zone full-scheme high-speed line distance protection
  - Quadrilateral or mho characteristic, or both
  - Series compensated lines
  - Scheme communication logic
  - Load encroachment discrimination
  - Selective phase selection and automatic switch on to fault logic
  - Current reversal and weak end infeed logic
  - Power swing detection and blocking
  - Phase preference logic
  - Pole slip protection
- High impedance differential protection for tee-feeders
- Current
  - Instantaneous phase overcurrent protection
  - Instantaneous residual overcurrent protection
  - Four step phase overcurrent protection with definite and inverse time characteristics
  - Four step residual directional overcurrent protection with definite and inverse time characteristics
  - Four step directional negative sequence overcurrent protection
  - Directional residual overcurrent protection with scheme communication logic
  - Sensitive directional earth-fault protection
- Broken conductor check
- Thermal overload protection
- Breaker failure protection
- Stub protection
- Pole discordance protection
- Directional under- and overpower protection
- Voltage
  - Two step phase- and residual overvoltage protection with definite and inverse time characteristics
  - Two step undervoltage protection with definite and inverse time characteristics
  - Overexcitation
  - Loss of voltage check
- Power functions
  - Loss of voltage check configured based on undervoltage protection
  - Dead line detection included in fuse failure supervision and switch on to fault logic
- Power system supervision
  - Under- and overfrequency protection
  - Rate-of-change frequency protection
- Secondary system supervision
  - Frequency functions
  - Multi-purpose function
  - General current and voltage protection

Power and productivity for a better world™
Logic
- Tripping logic
- Trip matrix logic
- Configurable logic blocks

Monitoring
- Disturbance recorder
  - 100 disturbances
  - 40 analog channels (30 physical and 10 derived)
  - 96 binary channels
- Event list for 1000 events
- Disturbance report
- Event and trip value recorders
- Fault locator
- Event counters
- Supervision of AC and mA input quantities
- Small and large HMI in local language
- LED indications with 6 red and 9 yellow LEDs

Metering
- U, I, P, Q, S, f and cos $\phi$
- Differential voltage per zone
- AC input quantities with accuracy better than 0.5%
- Inputs for mA measuring
- Energy metering function for energy statistics
- Pulse counting support for energy metering

Control functions
- Apparatus control for 8 or 15 apparatus
- Ready to use interlocking modules for different switchgear arrangements
- Several alternatives for reservation functionality
- Synchronizing, synchrocheck and energizing check
- Autorecloser
- Versatile switch with two positions
- Selector switch with up to 32 positions

Communication
- IEC 61850-8-1 including GOOSE messaging
- IEC 61850-9-2 LE Process bus
- Individually supervised redundant station bus with zero seconds' recovery time
- IEC 60870-5-103 serial communication
- DNP 3.0 slave protocol
- LON
- SPA
- Remote end communication for transfer of 192 binary signals

Setting, configuration and disturbance handling
- Protection and control IED manager PCM600

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 measurement transformers
- ADM module
- Up to 14 I/O modules in 1/1 x 19" case
- Binary input module, 30 mA and 50 mA, with 16 inputs
- Binary output module with 24 outputs
- Static binary output module with 12 outputs (6 static)
- Binary input/output module, 30 mA and 50 mA, with 8 inputs and 12 outputs
- mA input module with 6 transducer channels
- Accurate time-synchronization through GTM, GPS time module, SNTP, DNP 3.0 or IRIG-B-module
- Remote end data communication modules for C37.94, X21 and G.703/G.703E1
- Connector types: compression type or ring-lug type
- COMBITEST test switch module

Technical details are available in the REL670 Product Guide.

For more information please contact:

ABB AB
Substation Automation Products
721 59 Västerås, Sweden
Phone: +46 (0) 21 32 50 00
www.abb.com/substationautomation

Note:
We reserve the right to make technical changes or modify the contents of this document without prior notice. ABB AB does not accept any responsibility whatsoever for potential errors or possible lack of information in this document. We reserve all rights in this document and in the subject matter and illustrations contained herein. Any reproduction, disclosure to third parties or utilization of its contents – in whole or in part – is forbidden without prior written consent of ABB AB.

© Copyright 2013 ABB. All rights reserved.