

RELEASE NOTE 1MRG040291 | 2021-08-12

Release of Relion® 650 series Version 2.2

The evolution of Relion 650 series continues with this update. The designation of this update is revision 2.2.5

Release authorized by:

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Introduction



We are pleased to announce an update of the Relion 650 series version 2.2, our pre-configured protection and control IEDs. With this update, we bring several new features and enhancements.

The updates are covering all application areas within the products REB/REC/RED/REL/REQ and RET650. The Relion 650 series covers the following applications: line protection and control, transformer protection and control, high-impedance busbar protection, circuit breaker protection, and bay control. With the introduction of version 2.2 of the 650 series, we further expand the application areas especially for digital substations, enhancing the system functionality and flexibility.

New features and benefits



The following new features and their benefits are introduced in this update:

Application related

- Line distance protection function ZMFPDIS has been further improved to handle earth-faults in networks with no zero-sequence current source behind the relay location.
- A new fault component monitoring function FLTMMXU is now included in this release. The peak and RMS current and voltage values at the time of a triggering fault is captured and reported to clients over IEC 61850 communication. This allows the user to have a fast overview and evaluation of the network performance.
- Several math and logic functions are added to the existing library which help users to develop advanced application logics. The entire list can be found in the product documentation like product guide and technical manuals.
- In protection functions OC4PTOC, EF4PTOC and CVGAPC, the internal harmonic blocking detection reset the START signal and thereby the trip timers. In this release, the behavior of internal harmonic blocking detection has been modified to only freeze the trip timer. This enhancement eliminates the risk of temporary resetting of START signal and trip timer in case of evolving/simultaneous fault.
- The GOOSEINTRCV function is updated and can now receive transformer tap position from publishing YLTC logical nodes via GOOSE. With this feature IEDs that require transformer tap positions where it is physically not wired can obtain via GOOSE communication.
- The interface between 650 series scheme communication functions and protection signaling equipment are modeled according to IEC 61850 Ed2.

System and cyber-security related

- Rapid Spanning Tree Protocol (RSTP) according IEEE 802.1D is now available as a communication redundancy method in addition to the existing PRP and HSR. The RSTP offers a cost-effective station communication redundancy. The IED supports multiple redundancy methods and can be ordered. All communication redundancy protocols require 2 SFP communication ports and is configured using Ethernet Configuration Tool (ECT) in PCM600.
- The built-in disturbance recorder in the 650 series IED has been extended to support IEC 60255-24 (COMTRADE-2013) format. For backward compatibility purposes, a setting is available to record disturbances in earlier COMTRADE-1999 or the new COMTRADE-2013 format.

COMTRADE-2013 format provides several benefits like higher signal resolution, indication of time quality at recording and a single file (extension .CFF) containing all parts of the recording. PCM600 2.10 with PCM600 2.10 Hotfix Rollup 20210804 and SDM600 version 1.2 FP2 HF5 handle upload and analysis of both COMTRADE-1999 and COMTRADE-2013 formats as supported by 650 series.

- The LPHD PhyNam (Physical Name) is now modeled to include several attributes for the device name plate. These attributes can be configured with accurate data of the installed IED. When using a higher-level asset management system, Utilities can benefit by having high quality data on these IEDs which can further help to monitor and manage the installed assets.

- The transmission delay of line data communication can now be monitored on the LHMI and PCM600 signal monitoring tool. This helps in quick monitoring of the communication setup especially for line differential protection applications.
- OpenSSL updated to version 1.1.1j (<http://www.openssl.org>).

Hardware and product packaging related

- Directional residual overcurrent protection, four steps (EF4PTOC) has now been added to REC650.

PCM600 and IED connectivity package for 650 series products version 2.2

PCM600 version 2.10 together with PCM600 2.10 Hotfix 20210804 or later and 650 series connectivity package version 2.4.1 will be required.

The version 2.4.1 of the IED Connectivity package for Relion 650 series supports 650 series version 2.2 products as well as earlier versions of the 650 series.

For further details about the connectivity package and its installation, please refer to the release note 1MRG040292.

Documentation and marketing material

The product guides, technical manuals, technical summary sheets and brochures are available via <http://hitachi-powergrids.com/protection-control>.

Ordering and delivery

All new orders on the Relion 650 series version 2.2 products will be delivered with this latest version. Existing orders will be processed with the version/revision as acknowledged at order. If existing order needs be upgraded to this latest version, a request shall be made to **SA-T sales**.

For current delivery time, please get in touch with our sales contact at Hitachi ABB Power Grids, Grid Automation Products.

Kind regards,

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