Firmware update release 5.0.14 for 615 series IEC product version 5.0 protection relays

Scope

Firmware update release 5.0.14 is for the following 615 series protection relays:

- REF615
- REM615
- RET615
- REU615
- RED615
- REV615

To verify that the firmware update applies to the protection relay version, ensure that the second and last two characters of the order code on the label on top of the human-machine interface (HMI) match the corresponding characters of the order code in Fig. 1.

xBxxxxxxxxxxxxxxXG

Fig 1.Order code of the 615 series protection relays

To identify the current firmware revision of the 615 series protection relay, please refer to Fig. 2.

Fig. 2 Current firmware revision of the 615 series protection relay

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Implemented usability improvement

The firmware update release includes usability improvement but introduces no new functionality. The following improvement has been implemented:[1]

Firmware update release 5.0.14:

Communication

- Improvement to the Frequency measurement FMMXU avoids unnecessary reporting during momentary vector shift situations.
- Internal time synchronization startup improvement.
- SNTP improvement to possible time synchronization interrupt alarms in HSR Ethernet topology.
- Improvement enables the cyclic reporting of the unbalance currents from the Capacitor bank protection CUBPTOC and HCUBPTOC.

Engineering

- Minor correction on Bay name and Tooltip shown on WHMI

HMI

- Improvememt to LHMI module firmware to avoid firmware downgrading in case of LHMI module change or factory restore.

Supervision

- Self-supervision performance improvement to the internal CPU memory supervision.
- Self-supervision recovery handling improved in case of LHMI, IRF Code 79.
- Self-supervision reset handling improvement.

Firmware update release 5.0.13:

Communication

- SNTP time synchronization performance improvement with time masters those are drifting approx. more than 200 ppm from the GPS time which could cause unwanted Synch status up/down events.
- Internal GOOSE performance improvement.
- Performance improvement for MMS file reading of certain file types.

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[1] The relay firmware update may also include some minor usability improvements not listed in this note.

Supervision

- Handling of the RTD card internal fault situation improved.
- Correction that avoids unexpected self-restarting of the relay during specific start-up situations.

Firmware update release 5.0.12:

Communication

- Improvement to the 1588 time synchronization master switch-over situation.
- Time synchronization performance improvement for less accurate time master setups causing unwanted Synch status up/down events.
- Improvement to DNP3, Modbus, IEC 103 protocols data value updating functionality regardless of the IEC 61850 dataset/report control block configuration in the relay.
- Limitation to the maximum number of files that can be opened by the MMS client. This improves the situation with certain types of MMS clients stressing the relay's filesystem and then causing the Internal Fault "File system error" (Fault code 7).
- Correction to the Modbus protocol initialization in cases where the Modbus is used together with the Profibus/SPA-ZC302. Correction prevents unexpected self-restarting of the relay in the situations where the Modbus is not first manually initialized by restarting the relay after Modbus is enabled.
- Time synchronization accuracy over the line differential communication improved.

Supervision

- Self-supervision recovery time improved in case of IRF Code 83.
- Internal diagnostic improvement for the self-supervision.

Firmware update release 5.0.11:

Control

- Improvement to the synchrocheck function for preventing unexpected short-period reset of SYNC_OK output. The reset could have be seen in vector shift situations earlier.

HMI

- Improvement to the local HMI reaction to very short and repetitive auxiliary power interruptions.
- Differential current values from the line differential protection LNPLDF are now recorded properly by the fault recorder.

Communication

- Improvement to the 1588 transparent clock message handling when the 1588 time synch source is not being selected but the Switch or HSR Ethernet topology is being used.

- Improved the communication performance in very rare and high communication load condititions.
- Improvement to IEC 61850 modelling of Open and Close command syntax to support substation automation systems giving these value with different syntax.
- Modbus event handling improved so that events are generated even if not present in any IEC 61850 data set.
- Improvement to the PhyHealth status value timestamp handling in the relay start-up situations.
- Improvement to current and voltage harmonics demand value reporting for IEC 61850 communication.

Protection

- The 2nd harmonic blocking takes into account the "CT ratio correction" setting in line differential protection LNPLDF.
- Improvement to the alarm output activation of the current total demand distortion CMHAI and voltage total harmonic distortion VMHAI in case of short duration disturbances.

Firmware update release 5.0.10:

Protection

- The angle accuracy has been corrected when the Rogowski current sensors are used.

Update procedure

Firmware updates represent an integral part of ABB's life cycle management of distribution protection and control relays. The updates ensure optimized usability throughout the relay's entire life cycle by offering the latest improvements. The ideal time for a firmware update would be during periodical testing or a maintenance break.

All 615 series IEC version 5.0 (XG) product deliveries dispatched later than March 27, 2020 include the stated relay firmware update 5.0.14.

Please note that ABB will not be liable for any direct or indirect costs related to the firmware update procedure. The update procedure shall be performed at the sole responsibility of the possessor of the installed base.