



## Implemented improvements

This firmware update release includes usability improvements without changing the existing functionality of the product. The following improvements have been implemented:<sup>1</sup>

### Firmware update release 2.0.5

#### Communication

- Improvement along with IEC60870-5-104, Timer t3 for TCP Keep alive signal can be set from previously maximum 60 sec. to max. > 48h.

### Firmware update release 2.0.4

#### Communication

- Improvements in handling DNP3.0 events triggered when datapoint exceeds its configured deadband. With the improvement only the latest time tagged event will be transmitted in case of multiple changes before a renewed transmission.
- Support of DNP3.0 over UDP
- Improvement along with IEC60870-5-104, TCP Keep alive signal can be enabled and disabled.

### Firmware update release 2.0.3

REC615 2.0 variants has been extended with an additional variant "H" supporting 7 conventional current inputs plus 6 mixed voltage inputs (conventional VT or voltage sensors). (This requires the usage of Connectivity package Ver. 2.0.2).

#### Protection

- The improvement for the Wattmetric-based earth-fault protection WPWDE increases the function sensitivity in intermittent earth-faults when the fault has fault resistance > 100 Ohm.
- Improvement for Multifrequency admittance based earth-fault protection MFADPSDE for resistive mode

#### Measurement

- Improvement: The zero-clamping value for phase current measurement has been reduced/ adapted from 1.0% to 0.3% of nominal (In).

#### Communication

- Improved stability for front port interface recognized during cyber security tests
- Correction of MVI4GAPC function behavior when mapped to IEC60870-5-104
- 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.
- 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).

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<sup>1</sup> The relay firmware update may also include some minor usability improvements not listed in this note.

- 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.

### **Supervision**

- Self-supervision recovery handling improved in case of IRF Code 79.
- Internal diagnostic improvement for the self-supervision.
- Handling of the RTD card internal fault situation improved.
- Warning Code 2 during relay start-up situations with higher load configurations.
- Correction that avoids unexpected self-restarting of the relay during specific start-up situations.
- Self-supervision performance improvement to the internal CPU memory supervision.

## **Firmware update release 2.0.2**

### **Communication**

- Support of ModBus Master functionality along with Battery charger of Powernet Type ADC8490, to read diagnostic information and measurement values.
- The Modbus Master functionality is not limited to ADC8490 but only with it is verified in PVC.

## **Firmware update release 2.0.1**

### **Protection**

- Frequency function:  $df/dt$  minimum step value in FRPFRQ has been improved from 0.0025 to 0.0001  $f_n/s$ .

## **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 REC615 / RER615 IEC/ANSI & CN version 2.0 product deliveries dispatched later than 10<sup>th</sup> of March 2020, include the stated relay firmware update 2.0.5.

Please install also the latest version of the connectivity package for PCM600. (This is available via the update manager tool within PCM600)

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.