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Business Unit ABB Oy, Distribution Solutions
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Firmware update release 1.1.0.C5 for 630 series product version 1.1 protection relays

Scope

This firmware update release 1.1.0.C5 is for the following 630 series protection relays:

- REF630
- REM630
- RET630

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

XXXXXXXXXXXXXXXXXXXX**B** For product version B (1.1)

Fig 1. Order code of the 630 series protection relays

To identify the current firmware revision of 630 series relays, please note the parameter **ProductDef**, refer to Figure 2.

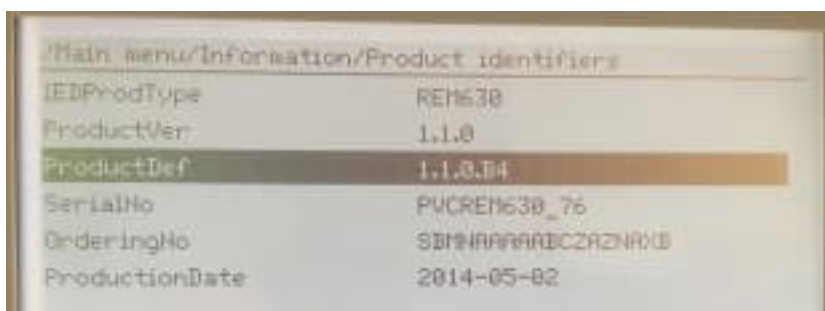


Fig. 2 Current firmware revision of the 630 series protection relay

The 630 series protection relays are to be updated using the software update tool (SUT630Lite). The tool automatically identifies the product order code and installs the correct firmware accordingly.

Implemented usability improvement

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

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Cyber security

- Cyber security improvement to the input validation in the IEC61850 GOOSE messages. The following vulnerability (CVE, Common Vulnerabilities and Exposures) has been identified in the product and fixed by the update:
 - CVE-2023-4518
- Cyber security improvement to the IEC 61850 MMS-client connections. The following vulnerability (CVE, Common Vulnerabilities and Exposures) has been identified in the product and fixed by the update:
 - CVE-2022-3353

Protection

- Improvement to the internal blocking behavior of stabilized differential protection for machines (MPDIF).

Firmware update release 1.1.0.C4

HMI

- HMI use is enabled with the relays which are ordered without HMI. Affect to 630 series relays where front panel option “No HMI” is selected, order code digit #13 is “N”. When making HMI configuration the connectivity package version 1.3.5 or later is required with PCM600.

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

Firmware update release 1.1.0.C3

Control

- Correction to switch object interlocking behavior. When switch object control (interlocking bypassed) is cancelled, interlocking bypass status will reset. Earlier the interlocking remained bypassed until the switching object has executed the next complete switch command.

Measurement

- Improvement for the relay behavior in case of negative time jump while disturbance recorder is making record. Negative time jump may happen due to bad quality of the time synchronization.

Firmware update release 1.1.0.C2

Communication

- Stability improvement for disturbance record upload via IEC 60870-5-103
- Improvement for GOOSE receive status after IED reboot
- DNP3 communication stability improvements during high communication load
- Entered IP addresses with leading zeros are handled now as decimal
- Improvement for test output in GOOSE receive functions

Control

- Correction to the tap changer control function (OLATCC) in cases where inverse time characteristics is in use. Correction prevents runtime application error in situations where measured voltages are suddenly dropping to zero.

Engineering

- Improvement for the QT-logic. When connecting the QT-logic block to only fixed signals, the outputs are now updated correctly.
- Improvement for online monitoring of SPGGIO and MVGGIO to show correct values in PCM600 even if IEC61850 is in operation OFF.
- Improvement for the time zone setting when IRIG-B 1344TZ encoding is used

HMI

- Now special characters (<, >, &) can be used on WebHMI event list
- Improvement for synchrocheck (SYNCRSYN) function to ensure the correct presentation of the monitored voltage data.

Measurement

- Improvement for hysteresis of zero point clamping on three-phase power (PWRMMXU) function

Protection

- Improvement for thermal calculation on motor thermal overload protection (MPTTR). Thermal calculation improved in cases when motor is stopped immediately after overload or start-up.
- Improvement for inbuilt low amplitude blocking on frequency gradient protection (DAPFRC). Sampling frequency of low amplitude check has been increased.
- Improvement to intermittent earth-fault protection function (INTRPTEF) in "Intermittent EF" mode in case of very small earth fault current I_0 and high earth fault voltage U_0 .

Supervision

- Improvement for self-supervision. Checks on missing MENU system on LHMI or relay type designation results in IRF being activated.

Firmware update release 1.1.0.C1

Protection

- Improvement to frequency measurement based protection functions for preventing unexpected blocking in very rare use cases with small frequency variation and vector shifting.
- Improvement for the reset of the circuit breaker failure protection (CCBRBRF) when currents fall below "Current value" setting or circuit breaker has opened.

Firmware update release 1.1.0.C0

Protection

- Improvement for the event sequence of the overcurrent and directional overcurrent function in case the operate time is incorrectly reported before the start time on event list.
- Improvement for waveform blocking outputs on Transformer differential protection (TR2PTDF) in cases when there are no failure in protected zone.

Condition monitoring

- Improvement for the energy monitoring function (EPDMMTR) when the energy accumulation is interrupted.

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Measurement

- Improvement for the reported dead band value outputs of the measurement functions in case of the negative time value.

Communication

- Cyber security improvement to prevent the restarting of the relay software when writing the incorrect SPA command over TCP/IP.

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 630 series version 1.1 product deliveries dispatched later than August 15, 2024 include the stated relay firmware update 1.1.0.C5.

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.