GE
Grid Solutions

UR^Plus Series

Version 1.93

Release Notes

Overview

This document contains the release notes for firmware versions 1.90, 1.91, 1.92, and 1.93 of the UR^Plus series of products.

Applicable to products: C90^Plus, D90^Plus

Date of firmware release 1.90: 1 May 2013

Date of firmware release 1.91: 30 March 2017

Date of firmware release 1.92: 20 July 2017

Date of firmware release 1.93: 9 December 2020

In the following descriptions, a category letter is placed to the left of the title. See the table at the end of this document for descriptions of the categories.

Firmware 1.90

Summary

Improvements include the following.

- Common Protection and Control Elements
  - Small Signal Oscillation Detection enhanced
- Communications
  - New redundancy capabilities as per IEC62439-3, PRP

Common Protection and Control Elements

E   Changes to Small Signal Oscillation Detection settings

Applicable: C90^{Plus}

The Small Signal Oscillation Detection (SSOD) Frequency settings range is increased to 0.08 – 1 Hz and the Frequency step is reduced to 0.02 Hz. There are no changes to the algorithm.

GE tracking number: 190-2

Communications

N   New redundancy capabilities with zero recovery time by supporting the Parallel Redundancy Protocol (PRP)

Applicable: All

Firmware version 1.90 provides UR^{Plus} devices with support for PRP specified by the IEC62439-3 (2012) standard.

Traditional redundancy protocols depend on reconfiguring the active topology of the substation LAN (switchover), which introduces short communication interruptions that range from a few milliseconds to seconds depending on the LAN configuration (ring, mesh, and so on).

PRP instead uses a different approach since no LAN reconfiguration is required. PRP makes a device replicate frames over two different networks, so both LANs become active. The substation client receives both frames and discards the replicated one. This removes the short communication interruption produced by the switchover of the other redundancy methods.

UR^{Plus} devices equipped with PRP functionality can enable this redundancy via settings. When enabled, UR^{Plus} devices support two independent IP addresses (not three as per default settings).

The PRP functionality requires, as a minimum, the software option "A2 – PRP". Additional software options, combining PRP with other existing optional functionality, are available.

For details on the PRP implementation, see the UR^{Plus} instruction manuals.

GE tracking number: 190-1

Firmware 1.91

Summary

Improvements include the following.

- Common Platform Functions
    - Harsh-Environment Coating added as an option
- Common Protection and Control Elements
    - Writing of automation/protection settings corrected
    - Correction of reset of Virtual Inputs when set to Self-Reset
- Communications
    - Assignment of DNP Paired Control Points corrected

Common Platform Functions

N   Harsh-Environment Coating added as an option

Products: C90^{Plus}

Impacted firmware: All to 1.90, except 1.84 and 1.85

Corrected firmware: 1.84, 1.91

Workaround: None

Description: Harsh-Environment Conformal Coating of the C90^{Plus} now is correctly implemented, allowing the UR^{Plus} to be used in extreme environments. The D90^{Plus} is not affected because it is available with the Harsh-Environment Conformal Coating option.

GE tracking number: 184-1

Common Protection and Control Elements

U   Writing of automation/protection settings corrected

Products: All

Impacted firmware: All to 1.90, except 1.84 and 1.85

Corrected firmware: 1.84, 1.91

Workaround: None

Description: A potential race condition can occur when writing a large volume of logic to the UR^{Plus}, whereby not all settings are written to the UR^{Plus}, especially on slower communication connections between EnerVista UR^{Plus} Engineer or Setup and UR^{Plus} devices. This can lead to a freeze of outputs.

This firmware version corrects the issue.

GE tracking number: 184-2

C   Correction of reset of Virtual Inputs when set to Self-Reset

Products: All

Impacted firmware: All to 1.90, except 1.84 and 1.85

Corrected firmware: 1.84, 1.91

Workaround: None

Description: Virtual Inputs do not always engage for at least one protection pass (1 ms at 60 Hz) when resetting is set to Self-Reset.

This firmware version corrects the issue.

GE tracking number: 184-3

Communications

C   Assignment of DNP Paired Control Points corrected

Products: All

Impacted firmware: All to 1.90, except 1.84 and 1.85

Corrected firmware: 1.84, 1.91

Workaround: None

Description: The DNP paired points control function is not implemented correctly. The paired control points are assigned only to Automation FlexLogic and not to Protection FlexLogic, hence only used if the UR^{Plus} included Automation Logic.

This firmware version corrects the issue.

GE tracking number: 184-4

Firmware 1.92

Summary

Improvements include the following.

- Security
    - Changed password reset mechanism

Security

G   Changed password reset mechanism

Products: All

Impacted firmware: All to 1.91

Corrected firmware: 1.92

Workaround: None

Description: Prior to this release, when the user forgot the configured settings or command passwords, they contacted GE Customer Services and provided an encrypted password to retrieve the passwords.

With this revision, the encrypted passwords are removed. The user must contact GE Customer Service to recover their relays.

GE tracking number: 192-1

Firmware 1.93

Summary

Improvements include the following.

- Common Protection and Control Elements
    - Improved fast load shedding algorithm to filter out erroneous power values received via GOOSE messages

Common Protection and Control Elements

G   Improved fast load shedding algorithm to filter out erroneous power values received via GOOSE messages

Products: C90^{Plus}

Impacted firmware: All to 1.92

Corrected firmware: 1.93

Workaround: None

Description: In previous versions, extremely large erroneous power values received by a C90^{Plus} via GOOSE packets causes the power values calculated by the Fast Load Shedding (FLS) algorithm to be frozen permanently at extremely large incorrect values. When this issue occurs, the FLS functionality can be recovered only by power-cycling the relay.

The new release filters out the erroneous values.

GE tracking number: 193-1

Upgrade

Compatibility

The firmware requires EnerVista UR^Plus Setup software version 1.90 or higher.

The firmware is compatible with UR^Plus hardware version 1.70 and higher.

For UR^Plus devices with firmware versions of 1.60 or older, a hardware upgrade can be required to migrate to the newer version.

For UR^Plus devices with firmware versions of 1.50 or older, careful consideration in regards to the UR^Plus Setup software must be taken into account to migrate to the new version. UR^Plus Setup software versions 1.7 and higher are not compatible with firmware versions 1.50 or older.

Upgrade

If upgrading both software and firmware, upgrade the software first.

Upgrade path for versions 1.70 and above

For UR^Plus devices having revision "B" CPU or firmware version 1.70 and above, the release can be uploaded to the relay using the EnerVista UR^Plus Setup software.

The fourth character of the UR^Plus device serial number identifies the CPU revision. Revision "B" CPUs are identified with the letter "D." The serial number can be seen on the device label or annunciator screen. An example is

    C90P-HE-PE03SSS-XHDAADCE01X
    Serial Number: mp4d10000016

To upgrade the software:

1. If a beta version of the EnerVista UR^Plus Setup software is installed, uninstall it, for example using the Windows Control Panel.

2. Download the new software from http://www.gegridsolutions.com/multilin
   The software is a .exe file.

3. Install the new software by clicking the file.

4. Refresh the order code in the EnerVista software under the **Device Setup** button.

5. Check the software version number under **Help > About**.

To upgrade the firmware:

1. Download the firmware from http://www.gegridsolutions.com/multilin
   Do not unzip the file, which is password-protected. The firmware is a .bin file.

2. Connect the computer to the device with an Ethernet c able.

3. In EnerVista, back up the device settings by right-clicking the device and selecting **Read Device Settings**. In the window that displays, enter a name for a new settings file and optionally a location for the new file. Click the **Receive** button to start the backup.

4. If an "Incompatible device order codes or versions" message displays, it means that you are trying to overwrite a file for another product. You access the **Convert Settings File** option by right-clicking the file in the Offline

Window area at the lower left.

5. In EnerVista, navigate to **Maintenance > Update Firmware**, select the firmware update by locating the locked .zip file, and proceed with the update. When the update is finished, the relay restarts automatically.

6. Restart the EnerVista software, and refresh the order code in EnerVista under the **Device Setup** button.

7. Verify the firmware version while the device is starting up or in EnerVista under **Actual Values > Product Info > Firmware Revisions**.

8. Set the device to "programmed" under **Settings > Protection > Power System > Installation > Relay Settings**. A self-test error displays on the device until this is done.

9. To apply any previously saved settings, right-click the saved settings file in the Offline Window area and select **Write to Device**.

Upgrade path for revisions 1.60 and below

For UR[Plus] devices that have another CPU revision or firmware 1.60 and below, contact GE Grid Solutions customer service. Those units can require hardware updates to support newer firmware versions.

Categories

This document uses the following categories to classify changes.

Revision categories

Code	Category	Description
N	New feature	A separate feature added to the relay. Changes to existing features even if they significantly expand the functionality are not in this category.
G	Change	A neutral change that does not add new value and is not correcting any known problem
E	Enhancement	Modification of an existing feature bringing extra value to the application
D	Changed, incomplete, or false faceplate indications	Changes to, or problems with text messages, LEDs, and user pushbuttons
R	Changed, incomplete, or false relay records	Changes to, or problems with relay records (oscillography, demand, fault reports, and so on)
C	Protocols and communications	Changes to, or problems with protocols or communication features
M	Metering	Metering out of specification or other metering problems
P	Protection out of specification	Protection operates correctly but does not meet published specifications (example: delayed trip)
U	Unavailability of protection	Protection not available in a self-demonstrating way so that corrective actions can be taken immediately
H	Hidden failure to trip	Protection does not operate when appropriate
F	False trip	Protection operates when it is not appropriate
B	Unexpected restart	Relay restarts unexpectedly

For further assistance

For product support, contact the information and call center as follows:

GE Grid Solutions
650 Markland Street
Markham, Ontario
Canada L6C 0M1
Worldwide telephone: +1 905 927 7070
Europe/Middle East/Africa telephone: +34 94 485 88 54
North America toll-free: 1 800 547 8629
Fax: +1 905 927 5098
Worldwide e-mail: multilin.tech@ge.com
Europe e-mail: multilin.tech.euro@ge.com
Website: http://www.gegridsolutions.com/multilin/