

## UR Family

# Version 7.32

## Release Notes

GE Publication Number: GER-4709F  
Copyright © 2017 GE Multilin Inc.

---

### Overview

This document outlines changes made for firmware and software releases 7.31 and 7.32 for the Universal Relay (UR) family of products.

Applicable to products: B30, B90, C30, C60, C70, D30, D60, F35, F60, G30, G60, L30, L60, L90, M60, N60, T35, T60

Date of release 7.32: firmware 30 May 2016; software 2015

Upgrade requirement: Optional. Users having a UR device with firmware version 7.xx can download and install the new firmware to benefit from the enhancements described in this release note. If the user does not require these new features and enhancements, no upgrade is required.

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 7.31

### Summary

Improvements include the following.

- Bus Differential Systems – B30, B90
  - B30 to support Power and Energy metering
  - B90 to deliver extended Bus protection capabilities by supporting up to six differential zones
- Common Platform Functions
  - CPU high-utilization monitor enhanced
- Communications
  - UR IEC 61850 capabilities have been enhanced to provide extended features and alignment to Ed. 2 of the standard
  - Fixed GOOSE and GSSE peer-to-peer communication no-longer available
- EnerVista UR Setup Software
  - EnerVista UR Engineer not available for UR FW version 7.3

### Bus Differential Systems – B30, B90

#### N **B30 to support Power and Energy metering**

731-01

Applicable: B30

With this FW version, Power and Energy metering are part of the actual values and analog operands available in B30 devices.

B30 devices must be configured with voltage inputs for power and energy values to be available.

For additional details on B30 power and energy metering, see the B30 instruction manual.

#### N **B90 to deliver extended Bus protection capabilities by supporting up to six differential zones**

731-02

Applicable: B90

With this FW release, the number of Bus Differential zones was increased from four to six. The additional two zones share the same features and capabilities as the original ones.

All B90 devices with previous FW versions (FW 7.2x or lower) and configured with four bus differential zones (selected software options), are upgraded with two additional zones when FW version is updated to 7.31.

Consequently, all B90 software options that include four-zone capabilities are automatically upgraded to six zones when FW version 7.3 is selected. This affects order code description displayed in documentation, configuration, and purchase tools.

For additional details on B90 with six differential zones, see the B90 instruction manual.

## Common Platform Functions

### E CPU high-utilization monitor enhanced

Products: All

Impacted firmware: All to 6.04, 7.0x to 7.24

Corrected firmware: 6.05, 7.25, 7.31

Workaround: None

Description: The CPU utilization monitor available on the UR webpage has been enhanced with four counters to provide a trend.

GE tracking numbers: 605-8

## Communications

### E UR IEC 61850 capabilities have been enhanced to provide extended features and alignment to Ed. 2 of the standard

731-03

Applicable: B30, B90, C30, C60, C70, D30, D60, F35, F60, G30, G60, L30, L60, L90, M60, N60, T35, T60

This FW release introduces an extensive number of improvements to the existing UR IEC 61850 functionality.

The table shows the enhanced IEC61850 features.

Feature Description	IEC 61850 (previous FW 7.2x)	IEC 61850 (FW 7.3x)
Number of data items available per data set for publishing GOOSE messages (GOOSE Tx)	32	64
Number of data items available per data set for GOOSE subscription (GOOSE Rx)	32	64
Number of remote inputs available for GOOSE Rx	64	128
New - Dynamic Quality of Service for GOOSE Tx	-	Yes
Number of logical devices	1	6
Logical node mapping	Basic, only main P&C elements	Over 80 P&C elements mapped

Feature Description	IEC 61850 (previous FW 7.2x)	IEC 61850 (FW 7.3x)
Number of configurable data sets for reporting services	1 64 data items	4 64 data items each
Number of data items per configurable data set	64	64
Number of simultaneous BRCB available	5	20
Number of simultaneous URCB available	9	14
Supported settings file	URS	Standard IEC 61850 SCL
Single SCL setting file to configure all UR settings	-	Yes
SCL setting file to support IEC 61850 Ed. 2 extensions (.ICD, .CID, .IID)	-	Yes
File transfer services supported for settings	-	SFTP, MMS
File transfer services supported for records	TFTP	TFTP, SFTP, MMS

Similar to previous implementations, IEC 61850 features are available when UR devices are configured with the IEC 61850 software option.

For additional details on the UR IEC 61850 implementation, see the new UR Series Communications Guide.

### C Fixed GOOSE and GSSE peer-to-peer communication no-longer available

731-04

Applicable: B30, B90, C30, C60, C70, D30, D60, F35, F60, G30, G60, L30, L60, L90, M60, N60, T35, T60

With previous FW versions, UR devices support three different ways of configuring peer-to-peer communication schemes, as follows:

- Configurable GOOSE – As per IEC 61850
- Fixed GOOSE – GE proprietary
- GSSE GOOSE – Legacy as per UCA 2.0 standard

Fixed GOOSE and GSSE GOOSE services are not supported any longer.

However, since configurable GOOSE exceeds the capabilities of the other two communication services, all peer-to-peer requirements can still be met using configurable GOOSE.

For additional details on the Configurable GOOSE capabilities, see the new UR Series Communications Guide.

## EnerVista UR Setup Software

### **C EnerVista UR Engineer not available for UR FW version 7.3**

731-05

Applicable: B30, B90, C30, C60, C70, D30, D60, F35, F60, G30, G60, L30, L60, L90, M60, N60, T35, T60

The EnerVista UR Engineer configuration tool does not support the new UR firmware version 7.3.

This is a temporary restriction caused by the development of an enhanced version to be available with the next FW release.

---

## Firmware 7.32

### Summary

Improvements include the following.

- Bus Differential System – B90
  - Fixed unexpected reboot in B90s with mismatch between hardware configuration and software option
- Line Differential Systems – L30, L90
  - Corrected 87L Max Asymmetry alarms
- Transformer Protection Systems – T35, T60
  - Improved percent differential 2nd harmonic inhibit mode at low differential currents
  - Corrected transformer percent differential and phase IOC misoperation due to late settings change detector report
  - Corrected transformer 2<sup>nd</sup> harmonic metering in T35/T60 when selected as FlexElement inputs
- Common Protection and Control Elements
  - Corrected UR Ground Distance zone 1 operate operand seal-in logic
  - Corrected C60 and N60 Autoreclose and VTFF elements to use Open Pole OP operand correctly
  - Fixed comparators failure in the Fast Distance element when angle is 180.00 degrees
  - Corrected UR fast phase distance quad characteristic calculation in versions 7.2x and 7.3x
  - FlexElement actual value metering when using Volts per Hertz element 2 is corrected
  - Corrected UR Phase Overvoltage element operating time
  - Corrected Volts per Hz element operating time at low frequencies
  - Corrected Breaker Arcing element
  - Modified Phase Selector fault type supervision for phase distance
  - Changed Autoreclose element pickup time, connected to Phase Select Multi-P operand pickup time, from 0 to 10 ms
- Common Platform Functions
  - Fixed relays with PTP (1588) software option to synchronize to valid IRIG-B on start-up
  - Improved prioritizing real-time clock source
  - Corrected pushbutton LEDs turn ON sequentially during LED test
  - Corrected operation of optional user-programmable pushbuttons 4 to 7 with basic front panel via EnerVista software
  - Corrected reset of Virtual Inputs when set to Self-Reset
  - Changed Module Failure 08 behavior to auto-recover the DSP
- Events and Records
  - Corrected GOOSE analogs metering and recording
  - Fixed DSP self-test error to record events during DSP failure and allow user pushbuttons to operate
  - Corrected URinfo.txt file
- Communications
  - Corrected firmware with IEC 61850 option to generate an XML valid IID setting file if the Relay Name contains non-ASCII characters (such as French characters, Chinese characters) or XML special characters

- Fixed logical node data attributes in fast GOOSE to update every protection pass instead of only every second
- Fixed unexpected reboot after removing DSP module from relay with IEC 61850 software option
- Fixed unexpected reboot after sending CID file from a relay with more than two CT banks and with Breaker Arcing Current element
- Error code of IEC 61850 Active Setting Group (ActSG) write is corrected
- All IEC 61850 buffered or unbuffered reports can be triggered simultaneously
- Corrected relay being placed automatically in-service after CID file upload
- Improved the search that updates the InRef attribute when UR parses a CID file
- The control block attribute RptID can be written via MMS services
- Improved parsing of CID file regarding IdName in each Logical Device
- Updated IEC 61850 oscillatory GOOSE functionality to include any binary item in a dataset
- Added the IEC 61850 simulation mode of operation for GOOSE
- Fixed quality and timestamp in IEC 61850 buffered report for disconnect switch
- Improved CID file parsing by preserving third-party namespace definitions in SCD header
- Corrected the day of the week in IEC 61850 SCL file
- Added missing data attribute instantiated (DAI) values in logical node zero (LLN0)
- Fixed the IEC 61850 "Last Settings Change Date" actual value and paramRev to update correctly
- Corrected calculation of deadband for any UR source neutral current in IEC 61850 MMXU nodes
- Corrected IEC 61850 breaker control XCBR#.Loc.stVal attributes
- Corrected IEC 61850 GOOSE input analogs to use RxGoose PU Base
- Fixed reboot of relay due to IEC 61850 buffered report in some rare race conditions
- Improved robustness of Modbus file transfer protocol
- Role login/logout events are now generated also for the serial port
- Fixed Observer logout issue when concurrent Observer roles are logged in
- Corrected security events text for local Administrator role
- Corrected Observer security login event upon start-up
- Fixed IEC 61850 GOOSE remote device status on a GOOSE configuration change in the transmitting relay
- Added IEC 61850 "originalSclVersion" and "originalSclRevision" attributes to SCL files
- Corrected implementation of IEC 61850 LPHD1.PhyNam.serNum in ICD file
- Allowed write to unsupported IEC 61850 buffered and unbuffered report control block trigger options TrgOps
- Fixed IEC 61850 quality status update
- Fixed IEC 61850 SCL validation to not reject CID file containing order code with XX
- Fixed issue in PRP transmission that can cause a system exception in systems with GOOSE
- Corrected PRP that takes a long time to switch ports
- Fixed buffered and unbuffered reports preventing 2 min connection timeout
- HardFiber
  - Corrected UR HardFiber protection from being blocked while "in service" after firmware upgrade
  - Corrected PMU phasor angles for UR devices communicating to HardFiber Brick when more than one PMU is enabled
  - Added support for fast distance, PMU frequency, and frequency rate of change
  - Fixed UR with HardFiber Fast Distance Phase and Ground Z1 and Z2 so that operating time is same as in conventional UR

- Phasor Measurement Unit (PMU) – Synchrophasors
  - New PMU post-filters added for frequency and rate of change of frequency (ROCOF)
  - Corrected PMU angle measurements for certain configurations
  - Corrected PMU frequency and ROCOF functions
- Transducer Inputs and Outputs
  - Corrected Rx GOOSE analogs assigned to DCmA output that show zero after a power cycle
  - Corrected DCmA intermittent metering
- EnerVista UR Setup Software
  - Software exceptions

## Bus Differential System – B90

### **B Fixed unexpected reboot in B90s with mismatch between hardware configuration and software option**

Products: B90

Impacted firmware: All to 7.31

Corrected firmware: 7.32

Workaround: Update hardware configuration to match software option.

Description: If there is a mismatch between the number of CT banks in the relay and the software option indicating the number of feeders in the order code, the relay experiences unexpected, continuous rebooting shortly after going into service.

In release 7.32, the firmware prevents unexpected rebooting in a B90 relay when the hardware configuration (number of CT banks) does not match the software option (number of feeders). The device goes into service and no alarm generates about a mismatch.

GE tracking number: 732-1

## Line Differential Systems – L30, L90

### **C Corrected 87L Max Asymmetry alarms**

Products: L30, L90

Impacted firmware: All to 7.25, 7.30, 7.31

Corrected firmware: 7.26, 7.32

Workaround: None

Description: During 87L re-synchronization, or when transmission packets are occasionally lost or corrupted, incorrect GPS timestamps can be used, potentially causing 87L Max Asymmetry nuisance alarms. This does not cause relay malfunction. The new releases fix the issue.

GE tracking number: 726-1

## Transformer Protection Systems – T35, T60

### **P Improved percent differential 2nd harmonic inhibit mode at low differential currents**

Products: G30, T35, T60

Impacted firmware: All to 7.25, 7.30, 7.31

Corrected firmware: 7.26, 7.32

Workaround: None

Description: A cutoff of 0.04 pu prevents inaccurate measurement, for example when the differential

current is less than 0.04 pu, the differential current and its 2<sup>nd</sup> harmonics component are forced to zero. This can lead to a false trip during transformer energization when both components in any phase (specifically lbd and lcd) drop below 0.04 pu in two out-of-three inhibit mode.

In the new releases, the two-out-of-three 2<sup>nd</sup> harmonic inhibit logic is applied only if all three phase differential currents exceed the cutoff level of 0.04 pu. In cases where differential current in any phase drops below 0.04 pu, the logic is reverted to one-out-of-two logic, ensuring reliable inhibit during energization.

GE tracking number: 726-2

**M Corrected transformer percent differential and phase IOC misoperation due to late settings change detector report**

Products: All but L60

Impacted firmware: 5.70 to 7.31

Corrected firmware: 7.32

Workaround: None

Description: The settings change detector reports too late to prevent IOC misoperation in a new setting group. The relay misoperates, initiates the recovery mechanism, reboots, and goes back into service.

Release 7.32 fixes the issue. The relay checks before data transfer. It validates the settings after calculating the data, just before reporting the data to the CPU.

GE tracking number: 732-39

**P Corrected transformer 2<sup>nd</sup> harmonic metering in T35/T60 when selected as FlexElement inputs**

Products: T35, T60

Impacted firmware: All to 6.04, 7.0 to 7.24, 7.30, 7.31

Corrected firmware: 6.05, 7.25, 7.26, 7.32

Workaround: None

Description: When 2<sup>nd</sup> harmonic differential harmonics magnitudes Xfmr harm2 lad, lbd, and lcd are used as an input to FlexElements, the FlexElement metering value does not read correctly and shows a higher value. The corrected releases use per unit correction factors to fix the issue.

GE tracking number: 725-21

## Common Protection and Control Elements

**P Corrected UR Ground Distance zone 1 operate operand seal-in logic**

Products: D30, D60, L60, L90, T60

Impacted firmware: 5.7 through 7.31

Corrected firmware: 7.32

Workaround: For single-pole applications, use Open Pole element, which ensures reset from seal-in.

Description: In release 7.32, Ground Distance zone 1 operate seal-in logic is corrected to ensure ground distance operate operand in any particular phase is reset once current disappears in this phase. There is no impact for 3-pole tripping applications and when the Open Pole element is used. The logic diagram also is updated in the instruction manual.

GE tracking number: 732-2

**D Corrected C60 and N60 Autoreclose and VTFF elements to use Open Pole OP operand correctly**

Products: C60, N60

Impacted firmware: All to 7.31

Corrected firmware: 7.32

Workaround: None

Description: Open Pole operands were not mapped correctly to Autoreclose and VTFF elements in C60 and N60 relays. This can result in inadvertent lockout of the Autoreclose when Open Pole is set to 'I AND V only' mode, or erroneous VTFF operation in a single-pole tripping applications. Release 7.32 fixes the issue.  
GE tracking number: 732-3

**F Fixed comparators failure in the Fast Distance element when angle is 180.00 degrees**

Products: D30, D60, G60, L60, L90, T60

Impacted firmware: 7.20 to 7.25, 7.30, 7.31

Corrected firmware: 7.26, 7.32

Workaround: Set the Voltage Level setting at minimum value to disable Fast Distance

Description: During firmware 7.2 implementation, a numerical bug was introduced inadvertently in the fast distance comparators. When comparing two vector angles (based on voltage and current phasors and impedance settings), resulting in exactly  $+180.00^\circ$  or  $-180.00^\circ$ , the output is returned as  $-180.00^\circ$ , which is below  $90^\circ$ , resulting in the comparator erroneous operation and distance operation. Phase and ground distance are impacted. See Service Bulletin URSB1215.pdf, available in LaunchPad, for details.

This issue exists in firmware revisions 7.20 to 7.25, 7.30, and 7.31, where fast distance, both phase and ground, can be disabled by using the minimum value of the Volt Level setting.

Release 7.32 fixes the issue.

GE tracking number: 726-6

**P Corrected UR fast phase distance quad characteristic calculation in versions 7.2x and 7.3x**

Products: D30, D60, G60, L60, L90, T60

Impacted firmware: 7.20 to 7.25, 7.30, 7.31

Corrected firmware: 7.26, 7.32

Workaround: None

Description: The left and right blinders of all fast phase distance characteristics were calculated incorrectly and caused only the regular distance to operate close to boundary conditions in previous firmware releases. This causes distance operation to be slightly slower than expected. Release 7.32 fixes the issue.

GE tracking number: 726-7

**P Corrected FlexElement actual value metering when using Volts per Hertz element 2**

Products: G30, G60, T60

Impacted firmware: 2.80 to 7.25, 7.30, 7.31

Corrected firmware: 7.26, 7.32

Workaround: None

Description: FlexElements using Volts per Hertz element #2 meters values incorrectly by a factor of 1000 (too high). Volts per Hertz element 1 is not affected. Release 7.32 fixes the issue.

GE tracking number: 726-10

**P Corrected UR Phase Overvoltage element operating time**

Products: C60, C70, D30, D60, F60, G30, G60, L30, L60, L90, M60, N60, T60

Impacted firmware: All to 7.24, 7.30, 7.31

Corrected firmware: 7.25, 7.26, 7.32

Workaround: None

Description: The Phase Overvoltage operate time was too slow, not meeting specifications. The reason for the slower operation was the incorrect number of security counts used before this fix.

Release 7.32 fixes the issue. The Phase Overvoltage element now operates in less than 30 ms at 1.1 x pickup, which is one cycle faster than before the fix and meets specifications.

GE tracking number: 725-6

**P Corrected Volts per Hz element operating time at low frequencies**

Products: G30, G60, T60

Impacted firmware: All to 6.04, 70x to 7.24, 7.30, 7.31

Corrected firmware: 6.05, 7.25, 7.26, 7.32

Workaround: None

Description: The Volts per Hertz element operates faster than expected if the operating curve is set to definite time at low voltages and frequencies. The problem happens at low frequencies only, below 6.6 Hz and when operate V/Hz signal is slightly above the pickup value. The two settings that affect the delay here are the VOLTS/HZ CURVE set to the Definite Time option, and the VOLTS/HZ TD MULTIPLIER.

Release 7.32 fixes the issue.

GE tracking number: 725-5

**P Corrected Breaker Arcing element**

Products: C60, D30, D60, F35, F60, L30, L60, L90, T35, T60

Impacted firmware: All to 7.25, 7.30, 7.31

Corrected firmware: 7.26, 7.32

Workaround: None

Description: For release 7.32, the following changes are implemented in the Breaker Arcing elements:

- Integration of kA2-cycle is now fixed to a 100 ms window that starts after BKR ARC AMP DELAY expires, which was initiated by ARC AMP INT. Previously, integration continued until ARC AMP INT dropped out, regardless of the 100 ms window.
- In previous versions when breaker operating time is measured, the timer resets to 0 if current is present for more than 100 ms. This is now changed to only stop the timer.

GE tracking number: 726-8

**P Modified Phase Selector fault type supervision for phase distance**

Products: D30, D60, G60, L60, L90, T60

Impacted firmware: Phase selector supervision exists in firmware revisions 7.20 to 7.25, 7.31.

Corrected firmware: 7.26, 7.32

Workaround: None

Description: Fault type supervision is changed for phase distance as follows.

Products with five phase distance zones (D30, D60, L90, T60):

- Phase distance Z4 and Z5 are not supervised by the fault type characteristic
- Phase distance Z1, Z2, and Z3 are supervised by the fault type characteristic, however they can be disabled by setting a non-zero value to Volt Level settings of phase distance Z5:

Products with three phase distance elements (G60, L60):

- None of the phase distance zones are supervised by the fault type characteristic

GE tracking number: 726-5

**E Changed Autoreclose element pickup time, connected to Phase Select Multi-P operand pickup time, from 0 to 10 ms**

Products: C60, D60, L60, L90

Impacted firmware: 2.90 to 7.25, 7.30, 7.31

Corrected firmware: 7.26, 7.32

Workaround: Not applicable

Description: If the Autoreclose mode is selected as Mode 3: 3Pole-A, the recloser can go to lockout incorrectly during switch-off transients. During breaker pole opening, the phase selector can assert the PHASE SELECT MULTI-P operand transiently, causing the autorecloser to lock out.

In release 7.32, in the Autoreclose element, pickup time for the timer connected to FlexLogic operand

PHASE SELECT MULTI-P is changed from 0 to 10 ms. Dropout time remains unchanged (5 ms).  
GE tracking number: 726-22

## Common Platform Functions

### D Fixed relays with PTP (1588) software option to synchronize to valid IRIG-B on start-up

Products: All with the Precision Time Protocol (PTP) IEEE 1588 software option

Impacted firmware: All to 7.31

Corrected firmware: 7.32

Workaround: None

Description: In some instances, after a reboot of a relay with the IEEE 1588 software option that is using a valid IRIG-B signal for synchronization, the relay does not lock onto the IRIG-B signal, but activates the “Clock Unsynchronized” operand (without displaying IRIG-B failure) .

In release 7.32, this issue is fixed and the IRIG-B signal is used on start-up or reboot.

GE tracking number: 732-34

### D Improved prioritizing real-time clock source

Products: All

Impacted firmware: All to 7.26, 7.30, 7.31

Corrected firmware: 7.32

Workaround: None

Description: The SYNCHRONIZING SOURCE setting displays under SETTINGS > PRODUCT SETUP > REAL TIME CLOCK when the relay includes the IEEE 1588 software option. The setting configures the priority sequence of the time synchronization source. For example, use of IRIG-B takes precedence over SNTP and the local clock.

For releases before 7.32, the setting and priority can be None, PP/IRIG-B/PTP/SNTP, IRIG-B/PP/PTP/SNTP, or PP/PTP/IRIG-B/SNTP.

In release 7.32, SNTP includes all other communication protocols (IEC 60870-5-103, IEC 60870-5-104, DNP).

For UR relays without the IEEE 1588 option, if IRIG-B is enabled and active, the relay prevents synchronization from the communication protocols DNP, IEC 60870-5-103, IEC 60870-5-104, and SNTP. Clock synchronization from the front panel and over Modbus is always allowed.

GE tracking number: 732-35

### D Corrected pushbutton LEDs turn ON sequentially during LED test

Products: All

Impacted firmware: 6.03 to 7.25, 7.30, 7.31

Corrected firmware: 7.26, 7.32

Workaround: None

Description: When an LED test is performed on a UR relay with enhanced front panel and user programmable pushbuttons, some of the pushbutton LEDs turn on, but not sequentially. Release 7.32 fixes the issue.

GE tracking number: 726-25

### D Corrected operation of optional user-programmable pushbuttons 4 to 7 with basic front panel via EnerVista software

Products: All with basic front panel and optional user-programmable pushbuttons (types P, G, S, and B)

Impacted firmware: 5.40 to 7.25, 7.30, 7.31

Corrected firmware: 7.26, 7.32

Workaround: Operate the pushbuttons from the relay front panel.

Description: Optional user-programmable pushbuttons 4 to 7 on the basic front panel can be operated from the front panel but not using the EnerVista UR Setup or Engineer software.

Release 7.32 fixes the issue so that the pushbuttons operate with the software too.

GE tracking number: 726-27

### **C Corrected reset of Virtual Inputs when set to Self-Reset**

Products: All

Impacted firmware: All to 7.25, 7.30, 7.31

Corrected firmware: 7.26, 7.32

Workaround: None

Description: Virtual Inputs are not always activated for at least one protection pass (2 ms at 60 Hz) when resetting is set to Self-Reset. This is evident when the event recorder shows the same time-stamp for VI On and VI Off in the case a Virtual Input is configured as Self-Reset.

Release 7.32 fixes the issue. Self-resetting Virtual Inputs now hold their value for at least one protection pass and the events are logged accordingly.

GE tracking number: 726-24

### **E Changed Module Failure 08 behavior to auto-recover the DSP**

Products: All except C30

Impacted firmware: All to 7.25, 7.30, 7.31

Corrected firmware: 7.26, 7.32

Workaround: None

Description: Module Failure 08 indicates that CT/VT module (DSP) is not responsive. The UR initiated Module Failure 08 when the DSP became unresponsive momentarily.

In the new release, the behavior of Module Failure 08 has been changed to auto-recover the DSP by rebooting the relay to bring the relay back into a healthy state.

GE tracking number: 726-31

## **Events and Records**

### **R Corrected GOOSE analogs metering and recording**

Products: All with the IEC 61850 software option

Impacted firmware: All to 6.04, 7.0x to 7.24, 7.30, 7.31

Corrected firmware: 6.05, 7.25, 7.32

Workaround: None

Description: In the new releases, the presentation of the GOOSE analogs in oscillography and data logger is changed to per unit, to be consistent with FlexElements and other FlexAnalog. GOOSE analogs now are presented in PU units in all types of logs.

GE tracking number: 725-19

### **R Fixed DSP self-test error to record events during DSP failure and allow user pushbuttons to operate**

Products: All except C30

Impacted firmware: 5.40 to 7.25, 7.30, 7.31

Corrected firmware: 7.26, 7.32

Workaround: None

Description: No events are recorded when the relay experiences DSP self-test error, for example Module Failure 08. After powering up the relay, depending on the firmware version, the timestamps are the same as the Module Failure 08 timestamp or no events are recorded at all. The new releases fix the issue.

GE tracking number: 726-21

#### **R Corrected URinfo.txt file**

Products: All

Impacted firmware: All to 6.04, 7.0x to 7.24, 7.30, 7.31

Corrected firmware: 6.05, 7.25, 7.32

Workaround: None

Description: Incorrect serial number, firmware boot version, and CPU module serial number are being retrieved from the relay settings file, for example the URinfo.txt file.

In the new releases, the boot revision, serial number and CPU module serial number are corrected in the urinfo.txt file retrieved by the EnerVista UR Setup software.

GE issue number: 725-20

## Communications

#### **C Corrected firmware with IEC 61850 option to generate an XML valid IID setting file if the Relay Name contains non-ASCII characters (such as French characters, Chinese characters) or XML special characters**

Products: All with the IEC 61850 software option

Impacted firmware: 7.30, 7.31

Corrected firmware: 7.32

Workaround: Use only ASCII characters in the relay name. These are numbers, characters, and a limited set of symbols, such as { and ~.

Description: An IID file is Instantiated IED capability description file. It is a file of actual settings on a UR.

In releases 7.30 and 7.31, if the Relay Name (Modbus register 17377) includes non-ASCII characters, the resulting IID file from the relay is not a valid XML file and cannot be opened by EnerVista UR Setup software.

In release 7.32, the incoming CID file with non-ASCII characters in the relay name setting, Virtual Output ID, or Virtual Input ID is accepted by the relay and the PhyNam.name attribute in the public section of IEC61850 is not used to update the relay name.

The generated IID file contains the last valid string containing valid ASCII character.

GE tracking number: 732-4

#### **C Fixed logical node data attributes in fast GOOSE to update every protection pass instead of only every second**

Products: All with the IEC 61850 software option

Impacted firmware: 7.31

Corrected firmware: 7.32

Workaround: None

Description: The data attributes of XCBR logical node in the breaker control element, the transformer differential elements (PDIF) logical nodes, and the FlexElement (FlxElGAPC) logical node are scanned only once a second. When attributes from these logical nodes are included in GOOSE or IEC 61850 report datasets, the trigger is not every protection pass. The specific logical nodes referred to are

- Breaker control data objects logical nodes Bkr0XCBR# and BkrOXCBR#
- Transformer instantaneous differential data objects logical nodes PiDifPDIF1 and PctDifPDIF1
- FlexElement data objects logical node FlxElGAPC#

In release 7.32, these data attributes are scanned every protection pass.

GE tracking number: 732-5

**B Fixed unexpected reboot after removing DSP module from relay with IEC 61850 software option**

Products: All with the IEC 61850 software option

Impacted firmware: 7.31

Corrected firmware: 7.32

Workaround: Default the settings before modifying the hardware configuration of a relay with a CID file to erase CID file

Description: In previous 7.3x versions, in a relay with the IEC 61850 software option and two or three digital signal processor (DSP) modules, if the relay was configured via CID file, a reboot occurs after one of the DSP modules is removed and the relay is rebooted.

In release 7.32, at boot up, before loading the configuration from the CID file, a check is performed to validate the actual hardware, the order code of the relay, and the order code in the CID file. If they are different, the CID file configuration is not loaded and the relay continues to remain out of service with "Equipment Mismatch" self-test activated. After a successful order code update, the CID file is removed when settings are defaulted.

GE issue number: 732-6

**B Fixed unexpected reboot after sending CID file to a relay with more than two CT banks and with Breaker Arcing Current element**

Products: C60, D60, F35, L90, T35 and T60 with IEC61850 software option

Impacted firmware: 7.31

Corrected firmware: 7.32

Workaround: None

Description: Relays with the IEC 61850 software option restart unexpectedly when applying a CID file to a relay with more than two CT banks and with the Breaker Arcing Current element. The issue stems from the initialization of the Breaker Arcing Current element, when the relay has more than two Breaker Arcing Current elements. The number of Breaker Arcing Current elements is the same as the number of CT banks, so the issue happens for relays with Breaker Arcing Current element and more than two CT banks.

Products that can have more than two Breaker Arcing Current elements are C60, D60, F35, L90, T35, and T60.

In release 7.32, the firmware prevents unexpected reboot when receiving a CID file from a relay with more than two Breaker Arcing Current elements.

GE tracking number: 732-7

**C Error code of IEC 61850 Active Setting Group (ActSG) write is corrected**

Products: All with the IEC 61850 software option

Impacted firmware: 7.31

Corrected firmware: 7.32

Workaround: None

Description: In release 7.32, the active setting group (ActSG) is selected via MMS command SelectActiveSG. The error code for service SelectActiveSG is changed from "temporarily-unavailable" to "object-value-invalid." This can be observed when performing controls using an IEC 61850 client.

GE tracking number: 732-8

**C All IEC 61850 buffered or unbuffered reports can be triggered simultaneously**

Products: All with the IEC 61850 software option

Impacted firmware: 7.31

Corrected firmware: 7.32

Workaround: None

Description: When the dataset is configured with all 64 items and BRCBs and URCSBs are using the same dataset, changing state of all items in the dataset results in only six IEC 61850 reports being sent out

instead of 34.

In release 7.32, the firmware allows all reports to be sent out.

GE tracking number: 732-9

### **C Corrected relay being placed automatically in-service after CID file upload**

Products: All with the IEC 61850 software option

Impacted firmware: 7.31

Corrected firmware: 7.32

Workaround: None

Description: The relay applies the “in-service” setting contained in the Private section of the IEC 61850 CID file. This can result in the relay being placed automatically in service after CID file upload.

In release 7.32, the relay retains the “in-service” setting state it had before the CID file was uploaded. The setting is under Settings > Product Setup > Installation > Relay Settings, with options of “Programmed” and “Not Programmed.” The setting value is not read from the CID file and remains the same as it was before the CID file was received.

GE tracking number: 732-10

### **C Improved the search that updates the InRef attribute when UR parses a CID file**

Products: All with the IEC 61850 software option

Impacted firmware: 7.31

Corrected firmware: 7.32

Workaround: None

Description: If an operand is assigned to an InRef object reference and the same operand is assigned to GGIO1 indication reference, after accepting the CID file the relay overwrites the InRef to the respective GGIO1 reference.

In release 7.32, GGIO1 and GGIO4 are skipped in the search that updates the InRef by the FlexLogic parameter to not overwrite the InRef with GGIO1 reference.

GE tracking number: 732-11

### **C The control block attribute RptID can be written via MMS services**

Products: All with the IEC 61850 software option

Impacted firmware: 7.31

Corrected firmware: 7.32

Workaround: None

Description: The RptID is the reported identifier of the control block that causes the generation of the report. In release 7.31, control block attribute RptID is read-only.

In release 7.32, changes can be made to the control block attribute RptID using the MMS services SetBRCBValues / SetURCBValues.

GE tracking number: 732-12

### **C Improved parsing of CID file regarding IdName in each Logical Device**

Products: All with the IEC 61850 software option

Impacted firmware: 7.30, 7.31

Corrected firmware: 7.32

Workaround: None

Description: IdName is a function-related name.

In releases 7.30 and 7.31, IdName is not checked for legal characters and if it is a duplicate.

In release 7.32, if IdName is configured, the relay validates that it follows the restrictions and rules defined in the IEC 61850 standard to maintain uniqueness in the SCL file for an IED.

GE tracking number: 732-13

**C Updated IEC 61850 oscillatory GOOSE functionality to include any binary item in a dataset**

Products: All with the IEC 61850 software option

Impacted firmware: 7.30, 7.31

Corrected firmware: 7.32

Workaround: None

Description: When four state changes are detected on a dataitem in a dataset within 40 ms, the state change monitoring is suppressed for one second. This detects chattering state changes and suppresses GOOSE, reports transmission.

Release 7.32 includes monitoring of the attributes of the FlexLogic logical node (FlxLgcGAPC), contact input logical node (ConInGGIO), and contact output logical node (ConOutGGIO) for oscillations.

GE tracking number: 732-14

**C Added the IEC 61850 simulation mode of operation for GOOSE**

Products: All with the IEC 61850 software option

Impacted firmware: 7.30, 7.31

Corrected firmware: 7.32

Workaround: Not applicable

Description: Release 7.32 adds the simulation mode of operation for GOOSE to allow handling of 'S' simulation bit as per IEC 61850-8-1 Ed2. The simulation state is now persistent through a power cycle to the relay.

GE tracking number: 732-15

**C Fixed quality and timestamp in IEC 61850 buffered report for disconnect switch**

Products: All with the IEC 61850 software option

Impacted firmware: 7.30, 7.31

Corrected firmware: 7.32

Workaround: None

Description: The quality and timestamp of the disconnect switch logical node are mapped incorrectly in an IEC 61850 buffered report. The time shows as midnight 1 January 1970 until the first status transition is made, for example to open or closed. Release 7.32 fixes the issue.

GE tracking number: 732-16

**C Improved CID file parsing by preserving third-party namespace definitions in SCD header**

Products: All with the IEC 61850 software option

Impacted firmware: 7.30, 7.31

Corrected firmware: 7.32

Workaround: None

Description: When importing a system configuration description (SCD) file, the third-party namespace definitions in the header element are replaced with GE namespace definitions. An example of such a header with GE namespace definitions is

```
<SCL xmlns="http://www.iec.ch/61850/2003/SCL"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.iec.ch/61850/2003/SCL SCL.xsd" version="2007"
revision="B">
```

In release 7.32, after accepting a CID file, the firmware now preserves third-party namespace definitions in the header of the generated IID file.

GE tracking number: 732-17

### C Corrected the day of the week in IEC 61850 SCL file

Products: All with the IEC 61850 software option

Impacted firmware: 7.30, 7.31

Corrected firmware: 7.32

Workaround: None

Description: The day of the week in the comment before the SCL element of the generated ICD and IID files from the relay are incorrect. The day of the week is one day later, for example it displays Sat May 15 instead of the correct Fri May 15. An example of the element is as follows.

```
<?xml version="1.0" encoding="UTF-8"?>
<!--Created by GE Digital Energy UR 7.32 on Sat May 15 11:03:08 2015-->
```

Release 7.32 corrects the day of the week.

GE tracking number: 732-18

### C Added missing data attribute instantiate (DAI) values in logical node zero (LLN0)

Products: C30 with IEC 61850 software option

Impacted firmware: 7.30, 7.31

Corrected firmware: 7.32

Workaround: None

Description: The following data attributes are missing in LLN0.Mod.sboClass and so on:

```
DAI='Mod$sboClass' is not in default list in LN='TEMPLATEmaster/LLN0'
DAI='Mod$operTimeout' is not in default list in LN='TEMPLATEmaster/LLN0'
DAI='MltLev$setVal' is not in default list in LN='TEMPLATEmaster/LLN0'
```

Release 7.32 fixes the issue. The following data attributes are added to LLN0:

```
LLN0.Mod.sboClass (operate-once | operate-many)
LLN0.Mod.operTimeout (maximum time required by process to complete the
operation, in milliseconds)
LLN0.MltLev.setVal (multi-level controller mode)
```

GE tracking number: 732-19

### C Fixed the IEC 61850 “Last Settings Change Date” actual value and paramRev to update correctly

Products: All with the IEC 61850 software option

Impacted firmware: 7.30, 7.31

Corrected firmware: 7.32

Workaround: None

Description: The “Last Settings Change Date” actual value does not update when a setting is changed (via Modbus or the front panel) or when a CID file is received. The LLN0.NamPlt.paramRev value is also supposed to increment with a settings change.

In release 7.32, the actual value “Last Settings Change Date” updates when the configuration of the relay is modified using a CID file in addition to the existing configuration update via Modbus protocol. The LLN0.NamPlt.paramRev updates correctly for configuration changes.

GE tracking number: 732-20

### C Corrected calculation of deadband for any UR source neutral current in IEC 61850 MMXU nodes

Products: All with the IEC 61850 software option

Impacted firmware: 7.30, 7.31

Corrected firmware: 7.32

Workaround: None.

Description: The wrong CT ratio is used in the calculation of the deadband for any UR source neutral current in IEC 61850 MMXU nodes. This can affect the data change (dchg) of analog values in MMS reports and GOOSE messages. Release 7.32 fixes this issue.

GE tracking number: 732-21

**C Corrected IEC 61850 breaker control XCBR#.Loc.stVal attributes**

Products: All with the IEC 61850 software option

Impacted firmware: 7.30, 7.31

Corrected firmware: 7.32

Workaround: None

Description: The value of IEC 61850 attributes Bkr(1,2,3)XCBR#.Loc.stVal are zero instead of the same as that of Bkr0XCBR#.Loc.stVal. Release 7.32 fixes the issue.

GE tracking number: 732-22

**C Corrected IEC 61850 GOOSE input analogs to use RxGoose PU Base**

Products: All with the IEC 61850 software option

Impacted firmware: All to 6.04, 7.0x to 7.24, 7.30, 7.31

Corrected firmware: 6.05, 7.25, 7.32

Workaround: None

Description: The base per unit of FlexElements or DCmA output is incorrect if configured to GOOSE analog inputs, causing incorrect operation. Release 7.32 fixes this issue to use received Analog Goose per unit base.

GE tracking number: 725-9

**C Fixed reboot of relay due to IEC 61850 buffered report in some rare race conditions**

Products: All with the IEC 61850 software option

Impacted firmware: 7.30, 7.31

Corrected firmware: 7.32

Workaround: None

Description: The UR architecture updates the buffered report binary data and the rest of the data (like quality, analogs) from two separate tasks. In versions 7.30 and 7.31, a race condition between the two tasks to access the same buffered report index causes the relay to reboot. Release 7.32 fixes the issue.

GE tracking number: 732-23

**C Improved robustness of Modbus file transfer protocol**

Products: All with the IEC 61850 software option

Impacted firmware: 7.30, 7.31

Corrected firmware: 7.32

Workaround: None

Description: The SCL files are retrieved by the EnerVista UR Setup software using Modbus file transfer protocol. In versions 7.30 and 7.31, one failed packet fails the whole file transfer and the user has to re-initiate the file transfer. Error -4000 occurs when downloading a ur.iid file, for example when transferring files between the Online and Offline window areas in the EnerVista UR Setup software.

In release 7.32, the firmware supports the automatic retry mechanism from EnerVista UR Setup software, allowing additional requests for the last failed packet. This applies to all interfaces – Ethernet and serial.

GE tracking number: 732-24

**C Role login/logout events are now generated also for the serial port**

Products: All with CyberSentry software option

Impacted firmware: 7.30, 7.31

Corrected firmware: 7.32

Workaround: None

Description: When using CyberSentry and a user logs on or off the EnerVista UR Setup software, for example as Administrator, Supervisor, or Engineer, no role login/logout events are generated for the serial port.

Release 7.32 fixes this issue; the login/logout events are recorded in "Security\_Events.csv" files.

GE tracking number: 732-25

**C Fixed Observer logout issue when concurrent Observer roles are logged in**

Products: All with CyberSentry software option

Impacted firmware: 7.30, 7.31

Corrected firmware: 7.32

Workaround: Prevent concurrent login of Observer roles

Description: The UR allows concurrent access of the Observer role. When several Observer roles are logged in, disconnecting one Observer role disconnects all other instances of Observer roles and prevents further login of other roles. Release 7.32 fixes this issue.

GE tracking number: 732-26

**C Corrected security events text for local Administrator role**

Products: All with CyberSentry software option

Impacted firmware: 7.30, 7.31

Corrected firmware: 7.32

Workaround: None

Description: The security events for the local Administrator role displays a truncated role name "Administra" and incorrect IP address for it in the "Security\_Events.csv" log. Release 7.32 fixes this issue.

GE tracking number: 732-27

**C Corrected Observer security login event upon start-up**

Products: All with CyberSentry software option

Impacted firmware: 7.30, 7.31

Corrected firmware: 7.32

Workaround: None

Description: Upon relay start-up, the Observer role is logged in by default as expected, but duplicate Observer login events are recorded in the "Security\_Events.csv" log.

Release 7.32 fixes this issue and a single login is recorded.

GE tracking number: 732-28

**C Fixed IEC 61850 GOOSE remote device status on a GOOSE configuration change in the transmitting relay**

Products: All with the IEC 61850 software option

Impacted firmware: 7.30, 7.31

Corrected firmware: 7.32

Workaround: Cycle power at the GOOSE receiving relay to adapt to a dataset change

Description: When sending GOOSE messages from one UR to another UR, the remote device status shows as online even though the incoming GOOSE frame has a different number of data items than the receiving relay. The receiving relay shows the remote device status as online, although it should be offline.

Release 7.32 adds a validation rule to detect correctly the number of dataitems in a dataset and match the member types as configured. The offline/online status of the remote device displays correctly.

GE tracking number: 732-29

**C Added IEC 61850 "originalSclVersion" and "originalSclRevision" attributes to SCL files**

Products: All with the IEC 61850 software option

Impacted firmware: 7.30, 7.31

Corrected firmware: 7.32

Workaround: None

Description: Release 7.32 adds the IEC 61850 "originalSclVersion" and "originalSclRevision" attributes to the IED element of the target IED in the SCL files as follows:

```
originalSclVersion "2007"  
originalSclRevision "B"
```

Here is an example of an IED tag in IID and ICD files:

```
<IED name="TEMPLATE" manufacturer="GE Multilin" type="C70" desc="UR"  
configversion="7.32" originalSclVersion="2007" originalSclRevision="B">
```

GE tracking number: 732-30

**C Corrected implementation of IEC 61850 LPHD1.PhyNam.serNum in ICD file**

Products: All with the IEC 61850 software option

Impacted firmware: 7.30, 7.31

Corrected firmware: 7.32

Workaround: None

Description: The relay populates the IEC 61850 LPHD1.PhyNam.serNum attribute only in the IID file.

In release 7.32, the relay now correctly populates this attribute with the serial number of the device in the generated ICD file.

GE tracking number: 732-31

**C Allowed write to unsupported IEC 61850 buffered and unbuffered report control block trigger options TrgOps**

Products: All with the IEC 61850 software option

Impacted firmware: All to 7.24, 7.30, 7.31

Corrected firmware: 7.25, 7.26, 7.32

Workaround: None

Description: Some UR firmware versions reject client write requests with the value "1" for the quality-change and data-update trigger option bits in report control blocks.

In release 7.32, write operation to all bits of the trigger options TrgOps operand of all buffered and unbuffered control blocks is corrected. The device supports the pre-listed TrgOps even though it allowed the write operation. All trigger options are accepted, even if they never actually trigger a report.

GE tracking number: 725-11

**C Fixed IEC 61850 quality status update**

Products: All with the IEC 61850 software option

Impacted firmware: 7.30, 7.31

Corrected firmware: 7.32

Workaround: None

Description: The quality status bits are not reported correctly under the following conditions:

1. Data objects that contain quality ("q") data attributes, or just the quality data attributes themselves are configured as part of a dataset.
2. Multiple instances of the logical node (PIOC01, PIOC02, and so on) that contains these data objects or data attributes exist.

In this case, the quality status bits are correct only for the first instance of the logical nodes, and not for all the other instances. The problem is present in previous v7.3x version for the following logical nodes:

CILO, F1xEIGAPC, GAPC, PDIF, PTOC, PIOC, RBRF, RDIR, XCBR.  
Release 7.32 fixes the issue.  
GE tracking number: 732-32

**C Fixed IEC 61850 SCL validation to not reject CID file containing order code with XX**

Products: All with the IEC 61850 software option

Impacted firmware: 7.30, 7.31

Corrected firmware: 7.32

Workaround: Update the order code from the front panel. Empty slots shown with XX are removed from the order code string.

Description: The relay rejects the IEC 61850 CID file if the order code in the Private section contains XX. The empty slots are considered when the order code is validated for a match causing the IEC 61850 CID file to be rejected. Release 7.32 fixes the issue.

GE tracking number: 732-33

**C Fixed issue in PRP transmission that can cause a system exception in systems with GOOSE**

Products: All with the IEC 61850 software option and/or PRP

Impacted firmware: All to 7.31, except 7.26

Corrected firmware: 7.26, 7.32

Workaround: None

Description: A bug in the PRP component can corrupt the outgoing MMS CLNP frame headers. A relay with the IEC 61850 software option with firmware 7.0x, 7.1x, and 7.20 to v7.25 can stop working when receiving the corrupt frames. Release 7.32 fixes the issue.

GE tracking number: 726-11

**C Corrected PRP that takes a long time to switch ports**

Products: All with PRP software option

Impacted firmware: 7.00 to 7.31, except 7.26

Corrected firmware: 7.26, 7.32

Workaround: None

Description: When a relay with PRP software option is pinged from a SAN device attached to RedBox, if the communication to port 2 or 3 is interrupted, it takes approximately two minutes to re-establish the connection and resume pinging. Release 7.32 fixes the issue.

GE tracking number: 726-30

**C Fixed buffered and unbuffered reports preventing 2 min connection timeout**

Products: All with the IEC 61850 software option

Impacted firmware: All to 6.04, 7.0x to 7.24, 7.30, 7.31

Corrected firmware: 6.05, 7.25, 7.26, 7.32

Workaround: None

Description: When an IEC 61850 client loses connection to buffered or unbuffered report blocks (BRCB or URCB), the connection is reserved for a limited time to allow for recovery. When this time expires, the connection is released to allow other clients to connect. Releasing the client connection is now enforced to 2 minutes, where it was previously random between 2 and 10 minutes.

GE tracking number: 725-10

## HardFiber

### **U Corrected UR HardFiber protection from being blocked while “in service” after firmware upgrade**

Products: All with Process Bus Card (B30, C30, C60, C70, D30, D60, F35, F60, G30, G60, L30, L90, M60, N60, T35, T60)

Impacted firmware: 5.60 to 7.25, 7.30, 7.31

Corrected firmware: 7.26, 7.32

Workaround: None

Description: After a firmware upgrade, a UR used with HardFiber can potentially be in service, meter correctly but not perform protection functions. The issue potentially happens after UR firmware upgrade and subsequent initial startup, and the relay does not indicate out of service status. The issue can be checked by operating any of the protection elements after the upgrade. If the relay shows correct operation there are not further checks required while the relay is in operation.

The new releases fix the issue.

GE tracking number: 726-28

### **M Corrected PMU phasor angles for UR devices communicating to HardFiber Brick when more than one PMU is enabled**

Products: All with PMU software option and Process Bus Card - C60, D60, F60, G60, L30, L90, N60, T60

Impacted firmware: All to 6.04, 7.0x to 7.24, 7.30, 7.31

Corrected firmware: 6.05, 7.25, 7.26, 7.32

Workaround: None

Description: Phase angles of other than the first enabled PMU are off by 30 degrees if more than one PMU is used in a UR communicating to a HardFiber Brick. The new releases fix the issue.

GE tracking number: 725-27

### **E Added support for fast distance, PMU frequency, and frequency rate of change**

Products: All with Process Bus Card (B30, C30, C60, C70, D30, D60, F35, F60, G30, G60, L30, L90, M60, N60, T35, T60)

Impacted firmware: 7.20 to 7.24, 7.30, 7.31

Corrected firmware: 7.25, 7.26, 7.32

Workaround: None

Description: Previous versions of the firmware do not support fast distance and PMU frequency and frequency rate of change functionality in the HardFiber relay.

A new process card and new firmware releases are able to broadcast samples to a co-processor, enabling the above-mentioned functions. In case of incompatibility of the firmware and process card hardware, self-test error Module Failure 31 gives indication of this incompatibility. This error is resettable by pressing the Reset pushbutton.

GE tracking number: 725-23

### **P Fixed UR with HardFiber Fast Distance Phase and Ground Z1 and Z2 so that operating time is same as in conventional UR**

Products: D30, D60, G60, L90, T60 with HardFiber and phase or ground distance

Impacted firmware: 7.20 to 7.24, 7.30, 7.31

Corrected firmware: 7.25, 7.26, 7.32

Workaround: Use Voltage Level setting set at minimum value to disable Fast Distance

Description: A UR with HardFiber Fast Distance Phase Ground Z1 and Z2 operating time is faster by about 6 ms compared to a conventional relay in previous firmware releases. This happens due to phasor angle error for Fast Distance zones 1 and 2 only. The corrected releases fix the issue.

GE tracking number: 725-26

## Phasor Measurement Unit (PMU) – Synchrophasors

### **M Added PMU post-filters for frequency and rate of change of frequency (ROCOF)**

Products: All with PMU software option - C60, D60, F60, G60, L30, L90, N60, T60

Impacted firmware: 7.31

Corrected firmware: 7.32

Workaround: None

Description: For a relay with a Phasor Measurement Unit (PMU) software option, the “PMU # f & df/dt FILTER” setting under the PMU Basic Configuration menu is now supported. This setting allows post-filtering to the frequency and rate-of-change-of-frequency to avoid reporting erroneous values, which can possibly happen during fault, switching, and other system disturbances. The setting was present in 7.31 but not supported. In release 7.32, the logic to support the setting is added.

GE tracking number: 732-36

### **P Corrected PMU angle measurements for certain configurations**

Products: All with PMU software option - C60, D60, F60, G60, L30, L90, N60, T60

Impacted firmware: All to 6.04, 7.0x to 7.31

Corrected firmware: 6.05, 7.32

Workaround: None

Description: Particular arrangements of sources can lead to PMU angle measurements to be off by three to five degrees. For example, assigning source 4 to PMU2 does this, and assigning a PMU to the second signal source when the first signal source is not used also does this.

The new releases fix the issue. Phase angles are consistent amongst all PMUs regardless of source used.

GE tracking numbers: 732-37

### **M Corrected PMU frequency and ROCOF functions**

Products: All with PMU software option - C60, D60, F60, G60, L30, L90, N60, T60

Impacted firmware: All to 6.04, 7.0x to 7.24, 7.31

Corrected firmware: 6.05, 7.25, 7.32

Workaround: None

Description: Current and voltage cutoff levels have been corrected in PMU frequency and rate of change of frequency (ROCOF) functions.

The new releases fix the issue.

GE tracking numbers: 725-14

## Transducer Inputs and Outputs

### **M Corrected Rx GOOSE analogs assigned to DCmA output that show zero after a power cycle**

Products: All with the IEC 61850 software option

Impacted firmware: All to 7.31

Corrected firmware: 7.32

Workaround: None

Description: When the DCmA source setting is assigned with an Rx GOOSE Analog, the DCmA Output shows a zero value in other the first DCmA element after a power cycle.

In release 7.32, all DCmA operate correctly with RxGOOSE assigned as an input, not just the first DCmA element.

GE tracking number: 732-38

## P Corrected DCmA intermittent metering

Products: All with DCmA inputs (all except B90)

Impacted firmware: 7.00 to 7.25, 7.30, 7.31

Corrected firmware: 7.26, 7.32

Workaround: None

Description: DCmA metered values drift by up to 6% for 1 mA and 1.7% for 20 mA inputs for up to one second, where the required accuracy is 0.2% full scale. This is a temporary, out-of-specification issue, up to one second at a time. This is more apparent if steady state DCmA input is less than 50% of full scale. It can happen at any time and is not linked to a particular condition. The new releases fix the issue.

GE tracking number: 726-9

## EnerVista UR Setup Software

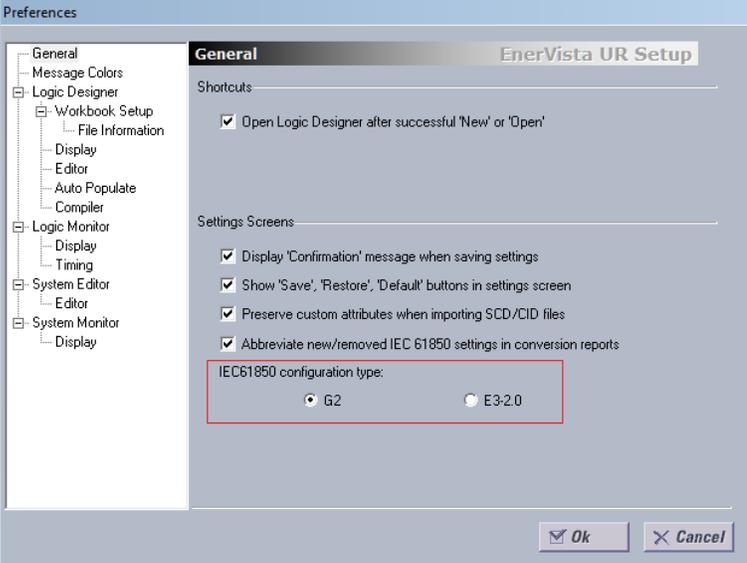
### G Software exceptions

Applicable: UR Setup Software

GE tracking number: 732-40

The following software exceptions have been corrected with software release 7.32.

Software Exceptions	
1	When connecting via UR set up software, the settings for AUTORECLOSE function under Control elements are not accessible.
2	Occasional issue when trying to open communication settings of online devices (online window). This was also seen when opening Settings and Actual Value windows of online devices.
3	When creating an ICD setting file, some instances of the MMXN_0 logical node class come with wrong numbers (Eg. MMXN_1, MMXN_2) that are not in the class definition at the end of the file
4	When creating an ICD setting file, network data related to Ethernet ports 2 and 3 was not shown. Applies to ICD files created from relays with firmware version (FW) 7.0, 7.1 and 7.2
5	The setting file comparison tool failed to identify a text difference within the contact input 1 user name. This user name field contained a mix of "space" and "(" characters. This also applies to other text setting fields
6	UR Setup tries to establish communication to devices listed in the Online window when saving changes to device setup window or during UR Setup startup

Software Exceptions	
7	<p>A setting field for selecting between G2 and E3 mode (used when creating CID setting files) was missed from the preference windows</p>  <p>The screenshot shows the 'Preferences' dialog box for 'EnerVista UR Setup'. The 'General' tab is selected. Under the 'IEC61850 configuration type:' section, the 'G2' radio button is selected, and the 'E3-2.0' radio button is unselected. This section is highlighted with a red rectangular box.</p>
8	Validation of “checking acceptable functional constraints” is now performed by UR Setup when importing SCL setting files
9	Edited “Rx GOOSE Boolean IDs” and “Rx GOOSE DPS IDs” were not displayed on the User Programmable LED’s configuration window
10	Edited “Rx GOOSE Boolean IDs” and “Rx GOOSE DPS IDs” were not displayed on the Rx GOOSE Boolean and Rx GOOSE DPS status window
11	UR Setup does not remove or default Direct Output and Direct Input settings for Channel 2 when converting a setting file from a 2-Channel order code (such as -W7K) to a 1-Channel order code (such as -W7D)
12	Added support to UR Setup when upgrading/downgrading between firmware revisions. Users are prompted to upgrade UR7 boot file to version 7.01 when required by the firmware file
13	Error message “Error reading value of setting parameter from device memory map and has replaced with a valid value UR_DATA_OSCILLOGRAPHY_DIGITAL_CHANNEL_X” was improperly popped up while creating a new setting file in the offline window

Software Exceptions	
14	Improved the performance when writing a settings file to a remote network drive
15	The printing implementation was changed to handle cases where the Print Spooler service was not running and now launches UR Setup without the RPC error message
16	“Out of Memory” error message popped up when the user adds a large number of devices (over 460 devices)

---

## Upgrade

### Compatibility

The 7.32 firmware runs on the T, U, and V CPU modules. View the order code to determine the CPU module in the relay. For example, in C60-V03-HPH-H6H, the relay has a V CPU module.

The 7.32 firmware release is not compatible with previous UR CPU hardware (CPU types A, B, D, E, G, H, J, K, N, and S).

The 7.32 firmware release requires EnerVista UR Setup software version 7.3x or higher. GE suggests use of the latest available version of the software.

### Upgrade

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

To upgrade the software:

1. Download the software from <http://www.gegridsolutions.com/app/ViewFiles.aspx?prod=urfamily&type=7>  
The software is a .exe file.
2. Install the software by clicking the file.
3. Refresh the order code in EnerVista under the **Device Setup** button.

To upgrade the firmware:

4. Download the firmware from <http://www.gegridsolutions.com/app/ViewFiles.aspx?prod=urfamily&type=7>  
The firmware is a .bin file.
5. In the EnerVista software, navigate to **Maintenance > Update Firmware** and select the .bin file.  
For any issues, see a UR instruction manual.  
When the update finishes, the relay restarts.
6. Restart the EnerVista software, and refresh the order code in EnerVista under the **Device Setup** button.
7. Set the device to "programmed" under **Settings > Product Setup > Installation**.

---

## Categories

This document uses the following categories to classify changes.

### Revision categories

Code	Category	Description
<b>N</b>	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.
<b>G</b>	Change	A neutral change that does not add new value and is not correcting any known problem
<b>E</b>	Enhancement	Modification of an existing feature bringing extra value to the application
<b>D</b>	Changed, incomplete, or false faceplate indications	Changes to, or problems with text messages, LEDs, and user pushbuttons
<b>R</b>	Changed, incomplete, or false relay records	Changes to, or problems with relay records (oscillography, demand, fault reports, and so on)
<b>C</b>	Protocols and communications	Changes to, or problems with protocols or communication features
<b>M</b>	Metering	Metering out of specification or other metering problems
<b>P</b>	Protection out of specification	Protection operates correctly but does not meet published specifications (example: delayed trip)
<b>U</b>	Unavailability of protection	Protection not available in a self-demonstrating way so that corrective actions can be taken immediately
<b>H</b>	Hidden failure to trip	Protection does not operate when appropriate
<b>F</b>	False trip	Protection operates when it is not appropriate
<b>B</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](mailto:multilin.tech@ge.com)

Europe e-mail: [multilin.tech.euro@ge.com](mailto:multilin.tech.euro@ge.com)

Website: <http://www.gegridsolutions.com/multilin/>