GE
Digital Energy

# UR Series

## Revision 5.92 Release Notes

## GE Publication Number: GER-4467 rev2



# Overview

### Summary

Release 5.92 of the Universal Relay (UR) series introduces new improvements for general and protection functions. Highlights include:

- Line Differential Systems: Increased pickup setting range of the bus differential element – L30, L90
  - L30 – Increased availability
  - L30, L90 – Master-Slave mode of a three-line terminal application with 50DD SV supervision
  - L30, L90 – Displayed values of 87LG restraint currents
  - L30, L90 – Loopback mode with channel monitoring
- Motor Protection
  - Changes to the voltage dependent thermal overload model
  - Thermal overload trip lockout
- Common Protection and Control Elements
  - Negative Sequence and Neutral Directional Overcurrent changes
- Communications
  - IEC61850 report control blocks to capture events after an Ethernet port failure event
  - Enhancements to the IEC60870-5-104 protocol
  - IEC61850 analog inputs
  - UR Operating System debug port has been changed to reject Ethernet traffic
- Product Advisory
  - Firmware upgrade restrictions for C70 and B90 devices with IRC modules and direct I/O enabled

This document contains the release notes for release 5.92 of the UR family.

- Affected products: B30, B90*****, C30, C60, C70*****, D30, D60, F35, F60, G30, G60, L30, L60, L90, M60, N60, T35, T60
- Date of release: Feb 25th , 2013
- Firmware revision: 5.92

***** Please refer to product advisory note on page 8

This document also contains the release notes of previous 5.9x firmware versions.

**If users have existing UR devices installed with older version of firmware (version 4.0x or higher), they can download and install this 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 of the relays is required.**

## Products Affected

This release encompasses the following UR products:

- B30 Cost-Effective Bus Differential System
- B90 Low-Impedance Bus Differential System
- C30 Controller System
- C60 Breaker Protection System
- C70 Capacitor Bank Protection and Control System
- D30 Line Distance Protection System
- D60 Line Distance Protection System
- F35 Multiple Feeder Protection System
- F60 Feeder Protection System
- G30 Generator and Transformer Protection System
- G60 Generator Protection System
- L30 Line Current Differential System
- L60 Line Phase Comparison System
- L90 Line Current Differential System
- M60 Motor Protection System
- N60 Network Stability and Synchrophasor Measurement System
- T35 Transformer Protection System
- T60 Transformer Protection System

## Firmware Compatibility

The 5.92 firmware release is compatible with the UR series hardware versions 4.00 and higher.

The use of the 5.92 firmware requires the EnerVista UR Setup software to be version 5.9x or higher.

# Motor Protection Systems

F **Changes to voltage -dependent thermal overload element add security when starting very high inertia motors**

572-1

Applicable: M60

Two key variables of the thermal overload protection element have been changed to increase the element's security:

- The "Voltage Dependent Thermal Overload curve" has been modified (10% more Stall current at 100% volts) to give motors a longer acceleration time. This is especially useful when protecting very high inertia motors.
- Negative sequence currents are now filtered to properly bias the equivalent motor heating current "Ieq" when the relay senses significant motor load changes.

If either your thermal overload element is not set for voltage dependency or the FW version matches any of those listed as follows, no action is required.

FW versions that fix this issue: 5.72, 5.92, and newer

U **Enhanced thermal overload element prevents permanent lockout after a motor thermal overload trip when the element is disabled or the relay is powered off.**

571-3

Applicable: M60

When the thermal overload element "49" operates, it is intended to go to a lockout state until the motor temperature returns to a safe level. This is known as motor cooling time, and the thermal lockout automatically resets after this period. However, there are situations where the thermal overload element trips and remains locked out until an emergency restart is performed. These conditions are:

1. When in thermal lockout state, the thermal element is disabled and, after the motor cooling time has elapsed, the thermal element is enabled again. It is important to remark that changing settings during a thermal lockout is not a normal procedure.

2. When in thermal lockout state, the relay is powered off and, after the motor cooling time has elapsed, the relay is powered on again.

Under these conditions, the thermal lockout remained on until an emergency restart command was performed.

Users who proceed as described are advised to update the FW version to 5.71, 5.92, or newer.

# Previous FW 5.91 Release Details

In the following descriptions, a revision category letter is placed to the left of the description. See the Appendix at the end of this document for a description of the categories displayed.

# Platform

P **The timestamp routine has been changed to prevent timestamp discrepancies and a longer protection pass period when daylight savings time (DST) is enabled**

591-1

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

When the DST function is enabled, the timestamp routine checks whether the timestamp needs to be updated according to DST for every single UR event record.

On a relay generating dozens of events within one protection pass period; this routine can make the protection pass longer than the relay specification. Therefore, the communication elements running at the end of the protection pass use the latest protection pass time, which forces a discrepancy between the internal event recorder and communication protocol time stamp.

A UR relay generating dozens of events within one protection pass period can also lead protection and control elements to operate out of specification.

This only affects end users having UR devices with previous FW version 5.90 and using the DST function. Upgrade the relays with FW version 5.91 or newer.

UR devices with FW version previous to 5.90 are not affected.

# Previous FW 5.90 Release Details

In the following descriptions, a revision category letter is placed to the left of the description. See the Appendix at the end of this document for a description of the categories displayed.

# Bus Differential Systems B30, B90

E **Increased alarm delay setting range for bus replica "Isolator" Elements simplifies B90 configuration**

590-1

Applicable: B90

In the B90 device, isolator elements have an "Alarm delay" setting that has to be set longer than Isolator operating time. In order to support schemes with slow-operation isolators, the time-range upper limit for the "Alarm Delay" setting has been increased from 10.00 seconds to 120.00 seconds.

Customers having previous FW versions have to do extra configuration ("Flexlogic Timers" or "Digital Elements") for extending the alarm delay when slow-operation isolators are part of the protected Bus Bar scheme; so this enhancements simplifies the B90 configuration for those cases.

# Controller Systems C30, C60

N **Additional P&C functionality to the C60 Breaker Protection Systems by adding the open pole detector and overvoltage elements**

590-2

Applicable: C60

This FW version provides the C60 Breaker Protection System with additional protection and control capabilities by adding the "Open Pole Detector" and the "Phase Over-voltage" elements. A single element is available per protection function.

These two new elements enable the C60 to be used in advanced applications (for example, single pole trip, auto-reclose). For further information, see the instruction manual.