



GE VERNOVA

Firmware Release Notes

UR Family

Version 8.8x

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Table of Contents

1	Summary	4
1.1	Date of firmware release	4
1.2	Highlights of Firmware 8.80	4
2	Firmware version 8.80	5
2.1	Bus Differential Systems B30, B90	5
2.1.1	Added new breaker status element in the B90 relay	5
2.1.2	Enhanced the breaker status element in B30 with PBM with a new "Breaker Status Invalid" setting to allow the user to configure the breaker status behavior when both inputs are identical	5
2.1.1	Enhanced the isolator element with a new "Isolator Invalid" setting to allow the user to configure the isolator behavior when both inputs are off	5
2.2	C70 Capacitor Bank System	6
2.2.1	Added support for the synchrocheck protection element in the C70 relay	6
2.3	F35 Feeder Protection System	6
2.3.1	Added support for the phase directional overcurrent and neutral directional overcurrent elements in the F35 relay	6
2.4	Line Differential Protection Systems L30, L90	6
2.4.1	Corrected firmware in L30/L90 relays with in-zone transformer SW option to prevent blocking of 87L current differential when the stub bus element operates	6
2.4.2	Fixed issue with synchrocheck element in L30 and L90 elements when configured to use the same source for both V1 and V2	7
2.5	Common Protection Functions	7
2.5.1	Added new load change detection element in the C60 and F60 relays	7
2.5.2	Enhanced the stub bus protection element	7
2.5.3	Added support for voltage inputs in the harmonic detection element	8
2.5.4	Updated directional supervision logic for ground distance zone 2 and higher	8
2.5.5	Changed the default value of the "Fast Distance" setting to disabled	8
2.5.6	Enhanced the supervisory trip security mechanism for differential elements	9
2.5.7	Increase the winding rated MVA setting range up from 2000 MVA to 5000 MVA	9
2.6	Platform	9
2.6.1	Added two new FlexAnalog for the three-phase real and reactive power calculated from the synchrophasors	9
2.6.2	Corrected voltage phasor diagram displayed on the GFP when using delta VT connection	10
2.6.3	Corrected the log files "SETTING_CHANGES.LOG" and "SECURITY_EVENTS.CSV" to use DST for their timestamps	10
2.7	Cybersecurity	10
2.7.1	Added configurable front panel inactivity timeout in relays with CyberSentry SW option	10

2.7.2	Added configurable timeout for SSH connections in relays with CyberSentry SW option.....	10
2.7.3	Added support for system use notification banner in relays with CyberSentry SW option	11
2.7.4	Changed firmware in relays with CyberSentry to allow retrieval of information in the DNP/IEC104/IEC103 webpages over SFTP	11
2.8	Communications	12
2.8.1	Enhanced firmware to allow changing specific settings via the IEC 61850 MMS protocol.....	12
2.8.2	Changed the quality source attribute (q.source) to “substituted” for certain IEC 16850 data objects published by the relay when subscribed GOOSE messages affecting these data objects are not received.....	12
2.8.3	Added support for Ethernet redundancy mode (PRP and failover) for spontaneous multicast synchrophasor transmission	12
2.8.4	Corrected issue with PMU timestamp in holdover mode	13
3	Appendix	14
3.1	Change categories.....	14
3.2	For Further Assistance.....	14

1 Summary

This document contains the release notes for firmware version 8.8x of the Universal Relay (UR) family of products.

This release note is applicable to the products: B30, B90, C30, C60, C70, C95, D30, D60, F35, F60, G30, G60, L30, L60, L90, M60, N60, T35, T60 and UR Communications Guide.

1.1 Date of firmware release

Firmware 8.80: July 2026

Note: Major firmware releases can introduce new protection and control elements that can affect the device's Modbus memory map. Check the summary of released features to find out if it applies to a particular release.

1.2 Highlights of Firmware 8.80

- **NEW** Added new load change detection element in C60 and F60 relays.
- **NEW** Added supported for phase directional overcurrent and neutral directional overcurrent protection elements in the F35 relay.
- **NEW** Add support for the synchrocheck protection element in the C70 relay.
- **NEW** Added new breaker status element in the B90 relay.
- **NEW** Added support for voltage inputs in the harmonic detection element.
- **NEW** Enhanced the stub bus protection element and added it to the C60, D60, and T60 relays in addition to the L30 and L90 relays.
- **NEW** Added two new FlexAnalog for the three-phase real and reactive power calculated from the synchrophasors.
- **NEW** Added support for a configurable front panel inactivity timeout in relays with CyberSentry SW option.
- **NEW** Added support for a configurable timeout for SSH connections in relays with CyberSentry SW option.
- **NEW** Added support for system use notification banner in relays with CyberSentry SW option.
- Enhanced the breaker status element in B30 with PBM with a new "Breaker Status Invalid" setting to allow the user to configure the breaker status behavior when both inputs are identical.
- Enhanced the isolator element with a new "Isolator Invalid" setting to allow the user to configure the isolator behavior when both inputs are off.
- Changed the quality source attribute (q.source) to "substituted" for certain IEC 16850 data objects published by the relay when subscribed GOOSE messages affecting these data objects are not received.
- Enhanced firmware to allow changing specific settings via the IEC 61850 MMS protocol.

2 Firmware version 8.80

2.1 Bus Differential Systems – B30, B90

2.1.1 Added new breaker status element in the B90 relay

Category: N

Products: B90

Impacted firmware: All to 8.71

Corrected firmware: 8.80

Workaround: N/A

Description: In previous versions, the B90 relay did not include a dedicated breaker status element. In firmware version 8.80, a new breaker status element was added to the B90 relay. This element detects the position of the breaker by monitoring one or two physical contact inputs. In addition to “Bad Status” this element also supports forced status option to force the breaker status to “Open” or to “Closed”, if identical breaker status inputs are detected.

2.1.2 Enhanced the breaker status element in B30 with PBM with a new "Breaker Status Invalid" setting to allow the user to configure the breaker status behavior when both inputs are identical

Category: E

Products: B30 with PBM

Impacted firmware: 7.80 to 8.71

Corrected firmware: 8.80 and higher

Workaround: N/A

Description: In previous versions, the breaker status element in the B30 relay with Process Bus Module (PBM) automatically sets the breaker status to “Bad Status” when both the 52a and 52b inputs are identical (both Off or both On). In firmware version 8.80, a new setting “Breaker Status Invalid” is introduced. This setting allows the user to configure the behavior of the breaker status element to assert its state as either “Bad Status”, “Open”, or “Closed” when the 52a and 52b inputs are identical.

2.1.1 Enhanced the isolator element with a new “Isolator Invalid” setting to allow the user to configure the isolator behavior when both inputs are off

Category: E

Products: B30 with PBM, B90

Impacted firmware: For B90: 3.00 to 8.71.
For B30: 7.80 to 8.71

Corrected firmware: 8.80 and higher

Workaround: N/A

Description: In previous versions, the bus replica isolator element in the B90 relay and in the B30 relay with Process Bus Module (PBM) automatically set the isolator position to the last valid position if the isolator open and close auxiliary contacts are both off. In firmware version

8.80, a new setting “Isolator Invalid” is introduced. This setting allows the user to configure the behavior of the bus replica isolator element to assert its position as either “Last Valid”, “Open”, or “Closed” when both open and close auxiliary contacts are off.

2.2 Capacitor Bank Protection and Control Systems – C70

2.2.1 Added support for the synchrocheck protection element in the C70 relay

Category: N

Products: C70

Impacted firmware: 1.80 to 8.71

Corrected firmware: 8.80

Workaround: N/A

Description: In previous versions, the C70 relay did not include the synchrocheck protection element. Firmware version 8.80 adds support for synchrocheck protection element in the C70 relay.

2.3 Feeder Protection Systems – F35

2.3.1 Added support for the phase directional overcurrent and neutral directional overcurrent elements in the F35 relay

Category: N

Products: F35

Impacted firmware: 7.20 to 8.71

Corrected firmware: 8.80

Workaround: N/A

Description: In previous versions, the F35 relay did not include phase directional overcurrent and neutral directional overcurrent elements. Firmware version 8.80 adds support for phase directional overcurrent and neutral directional overcurrent elements in the F35 relay.

2.4 Line Differential Protection Systems – L30, L90

2.4.1 Corrected firmware in L30/L90 relays with in-zone transformer SW option to prevent blocking of 87L current differential when the stub bus element operates

Category: U

Products: L30, L90

Impacted firmware: 5.90 and higher

Corrected firmware: 8.80

Workaround: N/A

Description: In previous firmware versions, in L30/L90 relays with in-zone transformer SW option, the stub bus operation on the local relay, blocks the 87L element on the remote relays. This issue is not present in relays that do not have the in-zone transformer SW option and in

relays where the in-zone transformer connection is set to “None”.
This issue is fixed in version 8.80.

2.4.2 Fixed issue with synchrocheck element in L30 and L90 elements when configured to use the same source for both V1 and V2

Category: U

Products: L30, L90

Impacted firmware: 8.30 to 8.71

Corrected firmware: 8.80

Workaround: N/A

Description: In version 8.30 a new mode was introduced for the synchrocheck element allowing you to set both “SYNCHK V1 Source” and “SYNCHK V2 Source” settings to the same source. In previous versions, this mode is not working correctly in the L30/L90 relays. The same configuration does work correctly for other relay types that include the synchrocheck element.
This issue is fixed in firmware version 8.80 for the L30 and L90 relays.

2.5 Common Protection Functions

2.5.1 Added new load change detection element in the C60 and F60 relays

Category: N

Products: C60, F60

Impacted firmware: All to 8.71

Corrected firmware: 8.80

Workaround: N/A

Description: Previous firmware versions did not include a dedicated load change detection element. Firmware version 8.80 adds support for a new load change detection element, which is used to monitor and detect load changes. Unlike traditional static thresholds, this element relies on adaptive threshold, thereby adjusting the sensitivity based on current loading conditions.

2.5.2 Enhanced the stub bus protection element

Category: E

Products: C60, D60, L30, L90, T60

Impacted firmware: 1.80 and higher

Corrected firmware: 8.80

Workaround: N/A

Description: In previous versions, the stub bus element was present only in the L30 and L90 relay as part of the line differential element and was a very simple element that just performed the logical AND operation between the Flexlogic operands assigned to the “Stub Bus Disconnect” and “Stub Bus Trigger” settings.
In firmware version 8.80, the stub bus protection element is enhanced with dedicated overcurrent logic and in addition to the L30 and L90 products, it is now also included in the C60, D60, and T60 relays. The updated element supports breaker-and-a-half applications

and can be used with existing Flexlogic operands or with dedicated overcurrent logic in the stub bus element.

2.5.3 Added support for voltage inputs in the harmonic detection element

Category: E

Products: C60, C95, D30, D60, F35, F60, G30, G60, L30, L90, N60, T35, T60

Impacted firmware: 8.00 and higher

Corrected firmware: 8.70

Workaround: N/A

Description: In previous versions, the harmonic detection element only supported currents as inputs. In firmware version 8.80, the harmonic detection element is enhanced to support also voltages as inputs.

2.5.4 Updated directional supervision logic for ground distance zone 2 and higher

Category: F

Products: D60, L90

Impacted firmware: 1.80 to 8.71

Corrected firmware: 8.80

Workaround: N/A

Description: Previous firmware versions enforced a fixed ground directional supervision, additional to the existing dual memory-polarized directional supervision for ground distance zone 2 and higher.

In firmware version 8.80, the directional supervision for ground distance zone 2 was updated to be fully customizable, providing greater flexibility for complex protection schemes. The customization includes the following options:

- Maintaining the existing additional ground directional comparator, which preserves backwards compatibility with previous versions.
- Configuring any Flexlogic operand for directional supervision.
- Permanently disabling directional supervision.

2.5.5 Changed the default value of the “Fast Distance” setting to disabled

Category: G

Products: D30, D60, L90

Impacted firmware: 7.20 and higher

Corrected firmware: 8.80

Workaround: N/A

Description: In previous versions, the setting “Fast Distance” is enabled by default.

In firmware version 8.80, the default value of the “Fast Distance” setting was changed to disabled.

2.5.6 Enhanced the supervisory trip security mechanism for differential elements

Category: E

Products: B30, B90, G30, G60, M60, T60, T35

Impacted firmware: 5.84, 6.07 to 6.09, 7.28, 8.21 to 8.24, 8.30 to 8.71

Corrected firmware: 8.80

Workaround: N/A

Description: In previous versions, a dedicated supervisory trip security mechanism validates the fault condition to detect erroneous data and block differential protection.
In firmware 8.8, this dedicated supervisory trip security is enhanced with existing instantaneous trip security to validate the fault condition to block/ release the operation of the differential element. This provides more robust fault validation thereby avoiding false blocking.

2.5.7 Increase the winding rated MVA setting range up from 2000 MVA to 5000 MVA

Category: E

Products: G30, G60, T35, T60

Impacted firmware: 1.51 to 8.741 for Transformer Winding Rated MVA
8.00 to 8.71 for Through Fault Monitoring

Corrected firmware: 8.80

Workaround: N/A

Description: In previous versions, the upper limit of the settings “Winding Rated MVA” and “Thru FLT MON WINDG RATED MVA” is 2000 MVA.
In firmware version 8.80, the upper limit of these two settings is increased to 5000 MVA.

2.6 Platform

2.6.1 Added two new FlexAnalog for the three-phase real and reactive power calculated from the synchrophasors

Category: E

Products: All products with PMU SW option

Impacted firmware: 4.90 to 8.71

Corrected firmware: 8.80

Workaround: N/A

Description: The UR synchrophasors frames may optionally include the transmission of analog data (FlexAnalog), making it possible to configure the relay to transmit the three-phase real and reactive source power in the PMU frame.
Firmware version 8.80 introduces two new FlexAnalog for the three-phase real and reactive power, calculated from synchrophasor currents and voltages. The PMU's internal signal processing and dynamic response characteristics result in reported power values that vary from the three-phase real and reactive power source measurements

2.6.2 Corrected voltage phasor diagram displayed on the GFP when using delta VT connection

Category: D

Products: All products apart from C30

Impacted firmware: 7.60 to 8.71

Corrected firmware: 8.80

Workaround: N/A

Description: In previous versions, for delta VT connection the GFP voltages phasor diagram was displaying the Vbc and Vca in phase.
This issue is fixed in firmware version 8.80.

2.6.3 Corrected the log files “SETTING_CHANGES.LOG” and “SECURITY_EVENTS.CSV” to use DST for their timestamps

Category: R

Products: All products

Impacted firmware: 7.00 and higher

Corrected firmware: 8.80

Workaround: N/A

Description: In previous versions, the timestamps in the log files “SETTING_CHANGES.LOG” and “SECURITY_EVENTS.CSV” did not include the Daylight Savings Time.
In firmware version 8.80, this issue is corrected.

2.7 Cybersecurity

2.7.1 Added configurable front panel inactivity timeout in relays with CyberSentry SW option

Category: E

Products: All products with CyberSentry SW option

Impacted firmware: 7.00 to 8.71

Corrected firmware: 8.80

Workaround: N/A

Description: In previous versions, relays with CyberSentry SW option did not have the option of setting a front panel inactivity timeout.
Firmware version 8.80 adds support for a front panel inactivity timeout that will automatically log a role/ user out, if no keys are pressed within the set time. The timeout applies to both EFP and GFP. A new attempt to log in a role/ user requires inputting the credentials to gain authorized access to the relay.

2.7.2 Added configurable timeout for SSH connections in relays with CyberSentry SW option

Category: E

Products: All products with CyberSentry SW option

Impacted firmware: 7.00 to 8.71

Corrected firmware: 8.80

Workaround: N/A

Description: Relays with CyberSentry SW option are using SSH to encrypt the Ethernet communication. In previous versions, the SSH connection had a fixed timeout of two minutes. Firmware version 8.80 adds support for a configurable timeout for SSH connections. If the SSH connection is not used for the configured timeout, the connection is automatically severed. A new attempt to reconnect requires inputting the credentials to gain authorized access to the relay.

2.7.3 Added support for system use notification banner in relays with CyberSentry SW option

Category: N

Products: All products with CyberSentry SW option

Impacted firmware: 7.00 and higher

Corrected firmware: 8.80

Workaround: N/A

Description: The IEC 62443 standard mandates the use of a system use notification banner before authentication (IEC 62443-4-2 CR 1.12). This notification banner is necessary to support policy requirements and may act as a deterrent for unauthorized access. In previous versions, the relay did not support such a notification banner. In firmware version 8.80, relays with CyberSentry SW option support a configurable system use notification banner. This banner is configurable by the appropriate roles, like other settings, and stored in the relay. If this functionality is enabled, Enervista UR Setup displays the banner before it prompts for the role/ user authentication credentials.

2.7.4 Changed firmware in relays with CyberSentry to allow retrieval of information in the DNP/IEC104/IEC103 webpages over SFTP

Category: E

Products: All products with CyberSentry SW option

Impacted firmware: 8.10 to 8.71

Corrected firmware: 8.80

Workaround: N/A

Description: In version 8.10 the webpages for DNP, IEC104, and IEC103 were removed from the relay's webserver in order codes with CyberSentry SW option to protect the confidentiality of the settings. In relays with CyberSentry SW option, firmware version 8.80 adds the capability of retrieving the data of the DNP, IEC104, IEC103 webpages in text format using SFTP by the Administrator, Engineer, and Operator roles using the file names below:
/vfiles/ DNPPoints.txt for the DNP webpage information.
/vfiles/IECDataPoints.txt for the IEC104 webpage information.
/vfiles/IEC103Settings.txt for the IEC103 webpage information.

2.8 Communications

2.8.1 Enhanced firmware to allow changing specific settings via the IEC 61850 MMS protocol

Category: E

Products: All products with IEC 61850 SW option for the FlexElement pickup settings, C70 with IEC 61850 SW option for the AVR settings.

Impacted firmware: All

Corrected firmware: 8.80

Workaround: N/A

Description: In previous versions, it is possible to write a CID file to the relay via the IEC 61850 MMS protocol. However, it is not possible to change individual settings via MMS. Firmware version 8.80 adds support for changing the following settings via MMS:

- FlexElement pickup settings (for all Platform relays).
- The settings “AVR VOLT LEVEL TO CLOSE” and “AVR VOLT LEVEL TO OPEN” in a C70 relay.

Writing these settings via MMS requires enabling a new setpoint called “Setting write via MMS”, under Protocol & Authority. Please note that the MMS protocol does not support any security features like passwords or RBAC.

2.8.2 Changed the quality source attribute (q.source) to “substituted” for certain IEC 16850 data objects published by the relay when subscribed GOOSE messages affecting these data objects are not received

Category: E

Products: All products IEC 61850 SW option

Impacted firmware: All

Corrected firmware: 8.80

Workaround: N/A

Description: When connectivity with the IEC 61850 GOOSE publisher is lost, the relay substitutes the value of the RxGOOSE Boolean Inputs and RxGOOSE DPS Inputs according to the user configuration using the settings “RxGOOSE Boolean Default State” and “RxGOOSE DPS Default State”, respectively. In this case, certain data objects, e.g., breaker and disconnect switch position (Bkr0XCBR.Pos and Disc0XSWI.Pos) published by the relay still have the DA q.source set to “process”.

In firmware version 8.80, the source data attribute (q.source) of specific data objects for the breaker, disconnect switches, breaker status, and isolator elements will change to “substituted”, if their value is based on the default value of the RxGOOSE Boolean Input or RxGOOSE DPS Input instead of a value from a received GOOSE message. Please consult the manual for additional details.

2.8.3 Added support for Ethernet redundancy mode (PRP and failover) for spontaneous multicast synchrophasor transmission

Category: C

Products: All products with PMU software option

Impacted firmware: 8.71

Corrected firmware: 8.80

Workaround: N/A

Description: Firmware version 8.71 added support for spontaneous multicast synchrophasors (PMU). However, Ethernet redundancy mode was not supported for the spontaneous PMU mode. Firmware version 8.80 adds redundancy support for spontaneous PMU, both failover and PRP (with the appropriate SW option).

2.8.4 Corrected issue with PMU timestamp in holdover mode

Category: C

Products: All products with PMU SW option

Impacted firmware: 8.60 to 8.71

Corrected firmware: 8.80

Workaround: N/A

Description: In firmware v860, a new holdover mode was introduced to prevent the PMU Sync Error flag to be asserted immediately when the PTP master clock loses the GPS time reference. While in holdover mode, when multiple PMU streams are published from the same relay and one stream is restarted, the streams may have different values for the PMU Sync Error flag. This issue is fixed in firmware version 8.80.

3 Appendix

3.1 Change categories

This document uses the following categories to classify the changes.

Code	Category	Comments
N	New feature	A separate feature added to the relay.
G	Change	A neutral change that does not bring any 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, etc.)
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
U	Unavailability of protection	Protection not available in a self-demonstrating way so that corrective actions should be taken immediately
H	Hidden failure to trip	Protection may not operate when it should
F	False trip	Protection may operate when it should not
B	Unexpected restart	Relay restarts unexpectedly

3.2 For Further Assistance

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

GE Vernova
650 Markland Street
Markham, Ontario
Canada L6C 0M1
Worldwide telephone: +1 905 927 7070
Europe/Middle East/Africa telephone: +34 94 485 88 54
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