



B90 Bus Differential Relay Revision 4.61 release notes

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Overview

Summary

- Affected products: B90 Bus Differential Relay
- Date of release: March 31, 2005
- Firmware revision: 4.61
- Boot code revision: 1.13

Release summary

This document contains the release notes for the 4.61 release of the B90 Bus Differential Relay series firmware.

New features and modifications to existing features listed in the following section with corresponding revision categories and reference numbers.

This document uses the following categories to classify the changes.

Table 1: Revision categories

Code	Category	Comments
N	New feature	A separate feature added to the relay. Changes to existing features even if they significantly expand the functionality are not in this category
G	Change	A neutral change that does not 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 (example: delayed trip)
U	Unavailability of protection	Protection not available in a self-demonstrating way so that corrective actions could 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

The code letter is placed to the left of the description. An internal GE reference number is placed to the right of the description. This number may be used to reference the modification when contacting GE Multilin.

GE Multilin technical support

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Release details

Existing features modified

- C** **Communications: TFTP server problems with Option Acknowledgement frames fixed** 17297
- The UR-series TFTP server sends two extra random bytes at the end of Option Acknowledgement frames. In previous releases, the TFTP server would abort file transfers depending on the value of the two extra bytes. TFTP clients that do not use TFTP option frames (e.g. transfer size, block size, timeout) do not see this problem. The 4.61 release corrects this issue.
- R** **Contact Inputs: correction to contact input operation during power on** 14748
- A contact input state can change when the relay is first powered on and the contact input voltage level is above 17 V, but below a higher threshold setting for the input. In previous revisions, the input state would then revert back to OFF after 1/8th of a power cycle. However, the input should not register a state change unless the input voltage exceeds the threshold setting and remains above the hysteresis level.
- For example, if
- Threshold = 33 V
Voltage at input at time of control power applied = 24 V
- then the relay would record a state change of ON then OFF. This functionality has been corrected for the 4.61 release.
- D, R** **Contact Outputs: false detector indications on other contact output cards caused the 4L latching relays have been fixed** 17046
- In previous revisions, there was an error in the mapping of the detector status bits when processing the 4L latching output contact module that affected any cards with detectors on contact outputs, such as type 6D, if they were to be installed in the UR-series chassis slots to the left of the 4L module. The error would result in the voltage or current detector status indications to falsely display as active, or "On", when certain 4L module contact outputs were activated. The 4.61 revision rectifies this issue.
- E** **Digital Elements: setting added to control faceplate LED indication** 12979
- In previous revisions, instantaneous pickup or delayed operation of any digital element was indicated by the Pickup LED on the front panel. With the 4.61 release, the **DIGITAL ELEMENT 1(16) PICKUP LED** settings are provided to disable this indication on a per element basis.
- C** **DNP Communications: add support for DNP file transfer services (Object 70)** 6978
- Support for DNP file transfer services (DNP Object 70) has been added. All UR-series relay files can be transferred to a DNP master using these services. The UR-series relays now support file transfer using Modbus, TFTP, MMS, and DNP.
- C** **DNP Communications: reporting changed for binary and frozen counters in a DNP Class 0 response** 13121
- DNP Technical Bulletin TB-2002-001 states that it is incorrect to report both binary and frozen counters in response to a Class 0 poll. With the 4.61 release, only binary counters are reported in response to a Class 0 poll.

C DNP Communications: improved support for binary output trip/close pair operation 4825

The DNP binary outputs typically map one-to-one to IED data points. That is, each DNP binary output controls a single physical or virtual control point in an IED. In the UR-series relays, DNP binary outputs are mapped to virtual inputs. Some legacy DNP implementations use a mapping of one DNP binary output to two physical or virtual control points. This was used to support the concept of trip/close (for circuit breakers) or raise/lower (for tap changers) using a single control point. That is, the DNP master can operate a single point for both trip and close, or raise and lower, operations. DNP Technical Bulletin 9701-002 recommends not using this type of implementation for new designs.

The UR-series relays can now be configured to support "paired" control points. Each paired control point operates two virtual inputs. A setting has been provided to allow configuration of from 0 to 16 binary output paired controls. Points not configured as paired operate as in previous versions.

R Event Recorder: time change event held in memory 11012
15478

In previous revisions, the UR-series relays will not log an event if the system time being written to the relay is earlier than the present displayed system time. This time change event is not lost, and the relay will display this event, once the time being written is greater than the displayed time. The 4.61 release has been modified to display all time change events, regardless of sequence.

C IEC 61850 Communications: additional IEC 61850 features implemented 14901

The IEC 61850 feature set in the has been modified to include additional features. The following changes and additions have been made:

1. Support for logical node PTOV - Overvoltage protection.
2. Support for logical node PTUV - Undervoltage protection.
3. Support for logical node RPSB - Power Swing protection.
4. Support for logical node RBRF - Breaker Failure protection.
5. Support for logical node RREC - Autoreclosure.
6. Support for logical node RFLO - Fault Locator.
7. Support for logical node MMXU, including buffered and unbuffered reporting, deadband functionality, and time-stamping.
8. Support for logical node GGIO, including buffered and unbuffered reporting, and time-stamping.
9. IEC 61850 GOOSE functionality, including configuration through the GOOSE control block. This includes Virtual LAN (VLAN) functionality, and ethernet priority tagging.
10. Complete IEC 61850 GSSE functionality, including configuration through the GSSE control block and support for GSSE DNA-1 and DNA-2.
11. Fully programmable logical node name prefixes.
12. Support for up to four simultaneous IEC 61850 client connections.
13. Update Sisco MMSLite library to the latest version (50052). This includes various problem resolutions and feature enhancements.
14. Other minor updates to specific data items that were missing in version 4.40.
15. The IEC 61850 feature set is now available only with a specific order code software option.

G Internal Enhancement: CT/VT module development tool change 11703

Changes to development tools for the CT/VT modules have been incorporated. These changes better utilize the existing resources of the modules and are transparent to the user.

G

Internal Enhancement: internal development tool changes

12307

Some enhancements were made to an internal tool used to simulate relay functionality on a desktop PC. No relay firmware files were modified.