

Multilin 8 Series Protection and Control Relay Platform

8 Series Firmware Version 2.80 and EnerVista Setup Software Version 2.81

Release Notes

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Overview

Summary

GE Grid Solutions releases 8 Series Firmware Version 2.80 and EnerVista Setup Software Version 2.81 for Multilin 8 Series Protection Relays. Highlights of this release include the following:

Multilin 8 Series Firmware Version 2.80 and EnerVista Setup Software Version 2.81

- **Platform**
 - Lowered Pickup level from 0.05 to 0.02 x CT
 - Trip output relay
 - Simple Network Management Protocol (SNMP)
 - PEAP support on Radius Authentication Method
 - Radius Authentication through the USB and HMI interfaces
 - IEC61850 Enhancements
 - DNP Enhancement
 - Default Screens
 - Tracking Frequency
 - Syslog log message severity updated
 - Syslog access level messages updated
 - Add support for Multi-Level Control
 - Simulation
 - Display intensity setting introduced

- **869**
 - Electrical Signature Analysis (ESA) enhancements
 - Show RMS values on Single Line Diagram (SLD)
 - Thermal Inhibit Function Enhancements
 - Introduced Thermal Capacity Used data point on Event Data

- Introduced Thermal Model dependency
 - VT Fuse failure
 - Introduced RTD Bias Pickup Delay setting
 - Support Last Acceleration time on IEC61850 logical node ZMOT
- **845**
 - IEC 61850 deadband step value updated for Differential Values on pcntPDIF logical nodes
 - 15 Digital inputs cards supported
- **889**
 - Phase Reversal
- **845, 869 and 889**
 - Percent Differential
- **850**
 - IEC 61850 Synchrocheck signal status corrected on boot-up
- **850R**
 - Low Energy Analog (LEA) cutoff adjusted
 - Auto Reclose Enhancements
 - Coil Open Pulse Delay
- **Setup Software**
 - Logic Designer
 - EventViewer Enhanced
 - Remote IO (RMIO) message changed for clarity
 - Custom names for 'Virtual input' screens

Release Date: **Aug 6, 2021**

Multilin 8 Series firmware versions 1.2x and below cannot be upgraded to firmware version 2.71. Please contact us to upgrade the product.

Upgrade the firmware to version 2.71 by downloading the file directly from our website:

[850 Feeder Protection System](#)

The latest EnerVista 8 Series Setup software is available at the same location. The software supports Windows 7, 8.1, and 10.

Please contact your local Multilin sales representative or Multilin Customer Service Department for any questions regarding this upgrade.

Release details

In the following release 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.

Firmware version 2.80

Platform

- E** **Lowered Pickup level from 0.05 to 0.02 x CT**
Lowered Pickup level from 0.05 to 0.02 x CT for the following protection elements.
 - Phase TOC (51P)
 - Phase IOC (50P)
 - Negative Seq TOC (51_2)
 - Negative Seq IOC (50_2)
 - Negative Seq Directional IOC (67_2)

- P** **Trip output relay**
Resolved trip output relay setting to take effect without having to reboot when CID file was written to change trip output from Latched/Non-Failsafe to Latched/Failsafe.

- N** **Simple Network Management Protocol (SNMP)**
SNMP v2 and v3 network protocol support added.

- N** **PEAP support on Radius Authentication Method**
Added PEAP support on Radius Authentication Method.

- E** **Radius Authentication through the USB and HMI interfaces**
Support added for Radius Authentication through front USB port and HMI interfaces.

- C** **IEC61850 Enhancements**
 - Average Currents added to IEC61850 metering, logical node MMXU "AvaAphs"
 - CSWI logical nodes updated to include "Loc" (Local status) attribute

- C** **DNP Enhancement**
"Unsol Resp at Startup" Setting introduced to support DNP unsolicited messages to be sent upon relay reboot.

- D** **Default Screens**
Resolved default screens to cycle without having to press any key on the front panel.

- M** **Tracking Frequency**
Resolved Tracking Frequency to accurately track frequency when VT signal decays and Vaux remains nominal

- C** **Syslog log message severity updated**
Syslog's log message severity updated to align with RFC5424 standard classification, the following messages have been updated

- SYSLOG_IPCOM_LOG_CRIT 2
- SYSLOG_IPCOM_LOG_ERR 3
- SYSLOG_IPCOM_LOG_WARNING 4
- SYSLOG_IPCOM_LOG_NOTICE 5
- SYSLOG_IPCOM_LOG_INFO 6

C Syslog access level messages updated

Syslog messages updated to show the various access levels during successful login

- Login - Administrator
- Login - Operator
- Logout - Administrator
- Logout - Operator

C Add support for Multi-Level Control

Added two new setpoints for Multi-Level control

- Multi-Level Control - When set to Enabled, control authority from multiple levels (Bay, Station and Remote) are allowed simultaneously, based on Local/Remote status and status authority status. Otherwise only one level has the authority to control, based on Local/Remote status and status authority status
- IED Local Status - This selects an operand that indicates whether the IED is in Local or Remote mode. When the operand value is set, the IED is in Local mode and any commands from remote protocols (IEC61850, DNP3, IEC 104 or 103, Modbus) are rejected

N Simulation

Added Pre-fault, Fault and Post-fault triggers to simulation function.

N Display intensity setting introduced

Display intensity setting introduced for Front Panel membrane options M and A. The backlight can be reduced to make the screen easier to view under higher ambient lighting.

869

E Electrical Signature Analysis (ESA) Enhancements

- Synchronous Motor support
- Motors with Variable Frequency Drives (VFD) without Voltage Transformers
- Vicinity setting introduced for each fault type of ESA i.e. Bearing, Mechanical and Stator
- The ESA data quality check threshold for Voltage has changed from 6% to 10% of nominal.

G Show RMS values on Single Line Diagram (SLD)

Changed the non-Configurable SLD and Configurable SLD to show RMS values instead of magnitudes.

E Thermal Inhibit Function Enhancements

Two new settings added to thermal Inhibit function allowing customizability on start

- Bypass Learned Start TCU - This setpoint provides flexibility to bypass the Learned Start TCU (TCL) value to determine the thermal capacity required to successfully start the

4

motor. When this setpoint is programmed to 'No', the thermal inhibit function determines the thermal capacity required to successfully start the motor using learned start TCU. When programmed to 'Yes', the thermal capacity required to successfully start the motor is determined by the value configured under setpoint 'TC REQUIRED TO START'.

- o TC Required to Start - This value specifies the thermal capacity required to successfully start the motor. The thermal inhibit function uses this value instead of the learned thermal capacity used at start (TCL) when: N (programmed) number of start history is not available, Setpoint 'BYPASS LEARNED START TCU' is set to 'Yes', Thermal Inhibit function is disabled and Thermal Model trips the motor at 100% thermal capacity.

R Introduced Thermal Capacity Used data point on Event Data

Introduced Thermal Capacity Used data point in Event Record.

E Introduced Thermal Model dependency

Thermal model dependency introduced to show Curve k factor only when overload Curve type is IEC.

F VT Fuse failure

Resolved VTFF from momentarily operating when on single phase voltage dip.

N Introduced RTD Bias Pickup Delay setting

Introduced RTD Bias Pickup Delay setting to secure thermal overload operations, avoid operations caused by momentary RTD reading spikes caused from noisy environment.

C Support Last Acceleration time on IEC61850 logical node ZMOT

Last Acceleration time added to IEC61850 logical node ZMOT.

845

C IEC 61850 deadband step value updated for Differential Values on pcntPDIF logical nodes

Deadband scaling for Differential Values on pcntPDIF logical nodes updated to accommodate for improved granularity of step size to provide more precision for metering.

N 15 Digital inputs cards supported

C option (15 Digital Inputs card) is now supported on slots B and C of the 845 relay providing up to additional 30 Digital Inputs.

889

H Phase Reversal

Corrected Phase Reversal element which was not functioning in firmware versions 2.70 - 2.72.

845, 869 and 889

F Percent Differential

Adjusted percentage differential functionality, which was operating faster than expected when pickup level was set to $\geq 0.47 \times CT$ and with Breakpoint 1 being equal to Breakpoint 2.

850

C IEC 61850 Synchrocheck signal status corrected on boot-up

IEC61850 Synchrocheck signal operands were not being initialized correctly on boot-up.

850R

- G **Low Energy Analog (LEA) cutoff adjusted**
Adjusted LEA's default cutoff value from 1v to 0.3v.

- G **Auto Reclose Enhancements**
Single Phase AR – Forcing all AR phases into lockout when AR is in progress and Local/Remote Open command is received.

- G **Coil Open Pulse Delay**
Removed the RCL status feedback from Open/Close command and changed Coil Open Pulse Delay default setting to 24ms.

Setup Software Version 2.81

Logic Designer

Logic designer now accepts equations with Virtual Output names containing open/close brackets "()".

EventViewer Enhanced

Added ability to sort events based on event number.

Remote IO (RMIO) message changed for clarity

RMIO diagnostic message changed from "Not available: RMIO option not selected" to "Not available: RMIO option not detected".

Custom names for 'Virtual input' screens

Custom names of Virtual Inputs are now visible in the Virtual Input Control and Actual Value status screens.

Appendix

Change categories

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

For further assistance

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

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