

LM10 Motor Protection System

LM10 Revision 1.60 Release Notes

GE Publication Number: GER-4098

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Overview

Summary

GE Multilin releases the LM10 1.60 version of firmware that modifies or enhances several features to the existing product. Highlights of this release include:

- ODVA DeviceNet Conformance Tested
- Instantaneous trip setting for Ground Fault, Jam, Current Unbalance, Load Loss, Stall.

This document contains the release notes for the 1.60 release of the LM10 Motor Protection System.

- Affected products: LM10
- Date of release: March 2, 2007
- Firmware revision: 1.60

Description

The version LM10 1.60 release is compatible with the EnerVista LM10 Setup software versions 2.4 and higher. This note covers the following system:

- LM10 Motor Protection System

Release Details

In the following change descriptions, a revision category letter is placed to the left of the description. Refer to the Appendix at the end of this document for additional details.

Communications

N

Communications: LM10 is now ODVA DeviceNet CONFORMANCE TESTED™

The LM10 Motor Protection System has been tested and approved by the ODVA (Open DeviceNet Vendor Association). ODVA's conformance testing provides assurance that products are built to comply with the ODVA DeviceNet specifications.



E

STOP bit now takes precedence over Run1 and Run2 bits in Polling control byte

The polling function accepts one byte of command data defined under Assembly Object, Class Code 4, Instance 100. Bit 3 is defined as the STOP bit. As long as the value of this bit is '1', the Run1 and Run2 bits will be ignored.

E

Poll Data Groups can now also be read through Explicit Messaging

The data that is produced through polling will vary, depending on which of three Poll Data Groups has been chosen in the LM10 settings. Each of these data sets can now also be read through explicit messaging as follows:

Poll Data Group 1 (7 bytes): Assembly Class 04, Instance 102, Attribute 3

Poll Data Group 2 (12 bytes): Assembly Class 04, Instance 103, Attribute 3

Poll Data Group 3 (22 bytes): Assembly Class 04, Instance 104, Attribute 3

E

%Unbalance Current now returns full value through Explicit Messaging

The data that is produced for %Unbalance Current when reading the Overload Object, Class Code 0x2C, Instance 1, Attribute 6 will now match the value displayed on the PDU. In previous revisions of firmware, only the upper digit of the value was being returned when read.

E

Security To Min added to polling data control byte

When the Assembly Object, Class 04, Instance 100, Attribute 3, Bit 5 is set to '1', the login security level will be automatically set to "User". The User login level adds additional security by preventing changes to setting values in the LM10.

E

Ability to reset trips through DeviceNet corrected

Using the Call function (0x4A) and writing a value of '1' to Assembly Object, Class 0x64, Instance 01, Attribute 0x2E will now reset any inactive trips in the LM10. This functionality works the same as the Reset key on the PDU display.

E

DeviceNet Connection Object returns correct Production & Consumption Paths for Poll data

The Poll Connection Object (Class 5, Instance 2) will now return the following information for attribute 14 (0x0E - Produced Path), based on the programmed Poll Data Group setting value:

Poll Group 1: 0x20, 0x04, 0x24, 0x66, 0x30, 0x03 (Class 4, Instance 102, Attribute 3)

Poll Group 2: 0x20, 0x04, 0x24, 0x67, 0x30, 0x03 (Class 4, Instance 103, Attribute 3)

Poll Group 3: 0x20, 0x04, 0x24, 0x68, 0x30, 0x03 (Class 4, Instance 104, Attribute 3)

The Poll Consumed Path (attribute 0x16) will now return a value of 0x20, 0x04, 0x24, 0x64, 0x30, 0x03 (Class 4, Instance 100, Attribute 3).

Miscellaneous

E

Power Given by LM10 is 3 Times the Expected Power Value

In previous revisions, the power was calculated using the following formula:

$$\text{watts} = 1.732 \times \text{average current} \times 3 \times \text{voltage} \times \text{power factor}$$

The $\times 3$ multiplier has now been removed to make the calculation:

$$\text{watts} = 1.732 \times \text{average current} \times \text{voltage} \times \text{power factor}$$

E

Delay Settings Modified

In previous firmware revisions, the delay value for Ground Fault, Jam, Stall, Unbalance Current, and Load Loss could be set to zero. A setting value of zero was interpreted in the firmware as disabling the function itself, and this was not clearly reflected in the manual or the PDU display. Now with the delay setting or 0 the relay will give a trip command instantaneously.

Software Updates

E

Software version 2.40 updated to support LM10 version 1.60 release

The EnerVista LM10 Setup software version 2.40 has been updated to support the LM10 version 1.60 release. The following change has been made to coincide with firmware modifications:

- Minimum delay settings modified

Instruction Manual Updates

The following items have been added or changed in the LM10 Motor Protection System instruction manual for revision 1.60 (GE Publication number GEK-106642C)

- Added ODVA DeviceNet Conformance Certification marks
- Page 1-10: Dimensions added: Thermal Overload CT and Ground Fault CT
- Page 4-8, Eq. 4-7: Modified the Power calculation to remove the "3 x" multiplier.
- Page 5-7, Connection Object, Class Code 5, Instance 2 (polled) produced and consumed path data updated.
- Added Assembly Object, Class Code 4, Instance 102, 103, and 104 for the Poll data Groups via Explicit messaging.
- Assembly Object, Class Code 4, Instance 100 updated to include "Security To Min" at bit 5.
- Updated firmware revision information from 1.50 to 1.60.
- Assembly Object, Class Code 4, Instance 101, Attribute 3, Bit 6 changed from "DeviceNet not Operating" to "Reserved".
- Format code F14 modified to reflect the proper location for Under/overvoltage enable, at bit 2.
- Format code F20, bit 7 changed from "Power loss" to "Reserved".
- Format code F24, under the third 4-bit section changed "Power loss" to "Reserved".

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 |

The revision category letter is placed to the left of the change description.

GE Multilin technical support

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