

GE Grid Solutions

MultiSync 100 GPS

Clock

Revision v3.16r3

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Overview

Summary

GE Multilin regularly introduces firmware updates to address enhancements in certain functional areas. This firmware is applicable to the MultiSync 100 GPS Clock, and the associated Configuration Tool:

- **Released August 19th, 2016**

Release details

The following notes describe the firmware changes and their impact. A revision category letter is placed to the left of the description. Refer to the Appendix at the end of this document for a description of the categories displayed.

MultiSync 100 GPS Clock

- N** Added slave-only PTP telecom profile.
- E** Added the ability to select None as the delay calculation method for PTP. This allows a fixed delay to be used instead of a calculated delay.
- E** Changed default SNMP access to unauthenticated = none and authenticated = read-only. Reset SNMP access to defaults when leaving insecure mode.
- E** When active, Test Mode now overrides any other active time sources. This improves the ease of use of test mode, as it is no longer necessary to ensure that all other time sources are disabled.
- E** The "Sync Relay is always on (Test Mode)" setting is now automatically deactivated after 1 week. This setting should only be used for testing purposes and should not be left on. The timeout ensures that it is deactivated if accidentally left on.
- E** Added name of new sync source to "Sync source changed" syslog message.

- E** Increased the time taken for the clock to fix its location from 10 minutes to 33.3 minutes. The clock will continue to improve its absolute accuracy to UTC during this period.
- E** Lowered holdover alarm when an out of sync alarm is raised.
- E** Increased the range of the daylight savings configuration to include 24:00.
- E** Increased the rate of GPS leap second information requests. GPS leap second information requests are now made every 12.5 minutes following first almanac, and not 1 minute prior to, or in the 6 hours following an already scheduled leap second event.
- E** The NTP server now reports the same sub-second value during a leap second, rather than rewinding to the start of the repeated second.
- E** The precision reported by NTP when synchronized to GPS is now set at -23 (119 nanoseconds). Previously, NTP responses reported a precision of -34 (0.058 nanoseconds).
- E** Initialization and auto-negotiation timeout periods have been increased to improve interoperability with network infrastructure equipment.
- E** Minor improvement made to configuration communication protocol for compatibility with latest version of the configuration tool.
- C** Fixed a bug to reset pulse duration when switching from DCF77 to programmable pulses.
- C** Fixed a bug causing occasional NTP multicast packets to be sent via broadcast.
- C** Ensured TTL output invert state is recorded correctly.
- C** IRIG-B outputs are now correctly suppressed when the "Suppress outputs when out of sync" option is selected. Previously, when this option was selected, user defined pulse and DCF77 simulation outputs were correctly suppressed, but IRIG-B outputs were not.
- C** IRIG-B extension fields are now set correctly. Previously, they were set using data from the following second.
- C** The time quality and continuous time quality (CTQ) indicators included in the IRIG-B C37.118.1 extensions now indicate matching quality levels. Previously, these quality indicators indicated conflicting quality levels.
- C** The daylight savings time change upcoming indicators are now suppressed when no daylight savings are observed. Previously, the clock could incorrectly output daylight savings change indicators when "Region observes daylight savings" was not selected.
- C** A power cycle is no longer required before the PTP foreign master timeout is updated. The foreign master timeout determines how often a slave clock must see announce messages in order to recognize a master as valid, and is determined by the configured announce interval. Previously, a change to the configured announce interval did not update the foreign master timeout until a power cycle occurred.
- C** PTP Delay Asymmetry value is now stored to clock correctly. Previously, this value was incorrectly reversed when stored.
- C** IPv4 addresses with final octet > 233 are now accepted. Previously IPv4 addresses with final octet > 233 were incorrectly rejected.

- C Allowed Block VLAN 0 to be set (But only via USB or a VLAN tagged Ethernet request).
- C Fixed a bug that could cause the Ethernet interface to fail to initialize when the Ethernet Link Settings are set to any option other than Auto. This bug could cause communication with the clock via the Ethernet port to be lost.
- C Reworked USB support to improve reliability.
- C Fixed a bug where the USB interface could excessively consume system resources, reducing the ability of the clock to handle high network traffic.
- C Fixed a bug which could cause the USB interface to become unresponsive when the USB cable is disconnected and reconnected.
- C Corrected handling of the alarm relay configuration on startup. Previously, after power was first applied, the alarm contact would remain in the "No Alarm" state during alarm events, regardless of how the alarm relay was configured. If the relay was subsequently configured via the configuration tool, normal operation would be restored.
- C Fixed a bug that could cause recoverable failure of loader upgrades.
- C Updated the system that loads the configuration from flash has so that the correct number of bytes is copied into RAM and no overflow occurs.
- C Allowed group creation in supervisor mode.
- C SNMPv3 requests that fail authentication are now rejected when the maximum unauthenticated access is set to None. Previously, unauthenticated SNMPv3 'Get' requests succeeded when the maximum unauthenticated access was set to None, in which case they should have been rejected.

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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