

FIELD SERVICE BULLETIN

FSB# 160218

February 18, 2016

Revised February 28, 2016

Affected Products: Tempus LX, Unison, Meridian, Tycho, RTM3204, Praecis Gntp, Tempus Gntp (all GPS-Synchronized)

Part Number:	Description:
3015-xxxx-xxx	Tempus LX GPS Network Time Server
3017-xxxx-xxx	Unison GPS Network Time Server
3019-xxxx-xxx	Meridian Precision GPS TimeBase
3021-xxxx-xxx	Tycho GPS Frequency Reference
3204-xxxx-xxx	RTM3204 GPS Timing Module
3009-xxxx-xxx	Praecis Gntp Network Time Server
3012-xxxx-xxx	Tempus Gntp Network Time Server

Note: "x" is variable.

Problem:

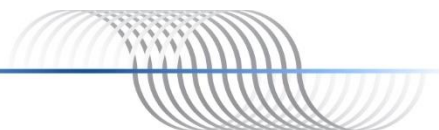
A time fault alarm occurred in the above products at 00:00:00 UTC on February 14th, 2016. The persistent time fault was caused by the internal GPS receiver not reporting the correct, extended GPS week number of 1884 that pertains to February 14-20, 2016. The GPS week count within the GPS receiver "rolled over" to week number 860 that pertains to June 30 – July 6, 1996. A firmware update is necessary to ignore the extended week count from the GPS receiver and apply it properly within the GPS Subsystem of the affected products.

It is very important not to reboot or power cycle the units before the GPS Subsystem is updated. Doing so will result in the unit not operating to its published specifications and could compromise the time and frequency provided to connected systems. After the GPS Subsystem firmware update has been applied and the system rebooted, normal operation will resume to the published specifications without a time fault alarm.

Only the EndRun GPS based, legacy products listed above (all previously discontinued and some 12-16 years old) were impacted by this issue. EndRun, however, on February 15, 2016 posted firmware updates on its [Support website](#) that are available to all customers at no charge.

EndRun's current Sonoma GPS Network Time Servers and Meridian II/Tycho II Precision TimeBases (that utilize EndRun's proprietary GPS receiver), were not affected by this issue. The extended GPS week count was properly computed. EndRun's CDMA products are not affected.

The GPS Subsystem firmware update also implements additional integrity checks on the GPS system almanac data similar to those incorporated into our proprietary GPS receiver design. This level of hardening successfully filtered the recent GPS system glitch due to incorrect UTC parameters in the almanac data set transmitted by some satellites. See EndRun Field Service Bulletin [#160126](#) for background and details.



Required Action:

The GPS Subsystem firmware must be upgraded on all affected products.

Apart from the error extending the GPS week count, the GPS receiver operated normally, tracked and locked to the satellite signals. The time fault was raised when the integrity checks on the time data from the GPS receiver recognized the rollover and rejected it. The GPS disciplined oscillator routines continued operating but the frequency accuracy and stability were degraded briefly each day when new UTC parameters were received from the receiver with the incorrect week number, causing an erroneous GPS-UTC correction to be applied. Interestingly, this behavior was similar to the effect caused by the GPS control segment transmitting incorrect UTC parameters on Jan 25, 2016.

The following section describes details regarding the software update:

Tempus LX, Unison, Meridian, Tycho, RTM3204

These products are comprised of two subsystems:

Linux/NTP Subsystem

- Current version is 6010-0044-000 v5.7 or 6010-0042-000 v5.7
- If your system does not have v5.0 or later, you must upgrade. Please review the version history.

Receiver Subsystem (GPS)

- Current version: 6010-0020-000 v5.10
- This upgrade must be applied to fix the GPS week number issue.

Praecis Gntp, Tempus Gntp

These products, that are 12-16 years old, are also comprised of two subsystems:

Linux/NTP Subsystem

- Current version: 6010-0003-000 v1.06 (Praecis Gntp). 6010-0006-000 v1.04 (Tempus Gntp)
- You must upgrade to the current version.

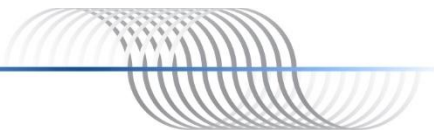
WARNING!!! This is a GZIP file (.gz) so use as is - do not decompress it before downloading into the NTP Subsystem. Some browsers will automatically unzip this file which will render your time server inoperable. After you have downloaded, make sure the gzip file is <3M in size before proceeding with the upgrade. If you have any trouble please [email](#) us or call 1-877-749-3878.

Receiver Subsystem (GPS)

- Current version: 6010-0001-004 v2.22 (Praecis Gntp). 6010-0001-004 v2.22 (Tempus Gntp).
- This upgrade must be applied to fix the GPS week number issue.

Software Download: The software is available from the EndRun Support site – [Download Software](#).

How to Upgrade: To apply the upgrade, please refer to “Appendix B - Upgrading the Firmware” in the respective product’s User Manual. The manuals are available on the EndRun Support site – [Documentation](#).



Contact Information:

Feel free to contact us if you have any questions or need help:

EndRun Technologies
2270 Northpoint Parkway, Santa Rosa, CA 95407 U.S.A.
707-573-8633 or 1-877-749-3878 (toll-free)
support@endruntechnologies.com

