

TTM 01-E & N1 Release Notes

Version 2.040 (29 June 2015)

- **Improvement:**
The default TAI -> UTC offset has been updated to the current value of 36.
- **Bug Fix:**
PTP and NTP time quality indicators now correctly show degrading sync quality while the clock is in holdover. Previously, the time quality indicators did not signal any degradation in quality until after holdover expired.

Version 2.039 (Limited Release)

- **Improvement:**
IRIG-B now contains year field as per IRIG-B 2004. Previously year was only available when C37.118.1 extensions were enabled.
- **Improvement:**
The position accuracy and sensitivity to movement has been improved.
- **Bug Fix:**
The serial string GPRMC now contains correct position information. Previously, the GPRMC string contained incorrect position information.
- **Bug Fix:**
8 bits are now used for the PTP domain value, which allows the PTP domain to be set to a value higher than 7. Previously, if the domain value was set higher than 7, only the last 3 bits would be used to determine the value used in PTP messages, effectively remapping the set value to a value less than or equal to 7.
- **Bug Fix:**
The leap second flags in PTP announce messages are now set correctly. The PTP LI 59 and PTP LI 61 flags will now correctly indicate an impending leap second event.
- **Bug Fix:**
When acting as a PTP slave the leap second indicators were not being correctly processed. This caused the leap second to happen late.
- **Bug Fix:**
The sub-second fraction of NTP time stamp rolls to zero at the start of the leap second. This allows the sub second fraction of timestamps taken during the leap second to be earlier in time than stamps recorded during the previous second. During the leap second the sub second fraction is now held at one count before the end of the second.

- **Bug Fix:**
During a leap second, NTP now repeats the last second of the previous day instead of the first second of the next day.

Old Leap Second Behavior	New Leap Second Behavior
23:59:56	23:59:56
23:59:57	23:59:57
23:59:58	23:59:58
23:59:59	23:59:59
00:00:00	23:59:59
00:00:00	00:00:00
00:00:01	00:00:01
00:00:02	00:00:02

- **Bug Fix:**
The NTP leap second indicator flag is now being set correctly. Previously the leap second indicator flag was missing.
- **Bug Fix:**
The current UTC offset value is now correctly stored. Previously, this value was not written to memory. This allows the unit to achieve sync without having to wait for the leap second value from GPS (up to 12.5 minutes)

Version 2.038 (12th January 2015)

- **Bug Fix:**
Fixed bug which prevented mobile GPS mode from being set
- **Bug Fix:**
Fixed bug in PTP message "Type" checking
- **Improvement:**
Added support for PTP V1 Compatibility Flag and Padding

VERSION 2.037 (10th June 2014)

- **Bug Fix:**
Ensures correct time stamping of network packets received in very quick succession.

VERSION 2.032 – 2.036 (Limited Release)

- **Improvement:**
Continuous Time Quality (CTQ) field added to conform to C37.118.1 / IEEE 1344 IRIG-B extensions.
- **Improvement:**
Code added to further strengthen remote upgrades.
- **Bug Fix:**
Timing algorithm has been modified to reject erroneous PTP time jumps.

VERSION 2.031 (8th July 2013)

- **Improvement:**
If no IP addresses are available, the clock will revert to a link local address (RFC 3927). This ensures that no IP clashes will occur on a network, during the remote upgrade procedure.
- **Bug Fix:**
Remote upgrade – during the remote upgrade procedure, it was possible for the unit to reset when writing to the memory. This was a fatal condition which caused the unit to become unresponsive.

VERSION 2.030 (Limited Released)

- **Improvement**
Updated the handling of the GPS information, so that the sync status is reported correctly.

VERSION 2.029 (Not Released)

VERSION 2.028 (Not Released)

VERSION 2.027 (Limited Release)

- **Improvement:**
Remote firmware upgrades are now supported.

VERSION 2.026 (Not Released)

- **Improvement:**
Further improvements have been made to the PTP syncing algorithm.

VERSION 2.025 (Limited Release)

- **Improvement:**
Added PTP functionality – The PTP C37.238 power profile (SLAVE ONLY) is now supported
- **Bug Fix:**
The PTP port number setting has been removed. It is now set to 1 by default. The domain number is now user configurable.
- **NOTE:**
Configuration tool V3.1.0 or higher is required to access the new settings.

VERSION 2.024 (27 August 12)

- **Bug Fix:**
When the clock came out of bootloader mode, it would transmit an incorrect MAC address. This only occurred after a power cycle.
- **Bug Fix:**
After upgrading the Ethernet port from 1.x.x.x Firmware to 2.x.x.x Firmware, the unit type was incorrect.
- **Bug Fix:**
The clientID has now been added to the DHCP messages. DHCP messages were being transmitted without the clientID which prevented some servers from responding.

- **Bug Fix:**
Spurious PTP messages debug messages which were being transmitted over Ethernet have now been removed.

VERSION 2.018 to 2.023 (NOT RELEASED)

VERSION 2.017 (30 January 2012)

- **Improvement:**
PTP syncing was improved.

VERSION 2.016 (27 January 2012)

- **Improvement:**
An improvement was made to the PTP slave syncing.

VERSION 2.015 (19 January 2012)

- **Bug Fix:**
A bug has been found inside the set time routine when the UTC offset was set to negative time zone. This has now been fixed.

VERSION 2.014 (23 November 2011) (NOT RELEASED)

VERSION 2.013 (29 August 2011) (NOT RELEASED)

VERSION 2.011 (16 June 2011)

- **Improvement:**
NTP updated to meet RFC 5905
 - NTP stratum selection modified – Originally it was 1 when in sync and 0 when not, now it is:
 - 1 when synced to GPS
 - 2 when synced to IRIG-B
 - 16 when out of sync

VERSION 2.001 (04 March 2011)

- **Improvement:**
The configuration tool has a new feature allowing the user to modify the baud rate of the serial port, when outputting different time strings.