LT-1000 SW v1.05 Release Notes

Product Name:	LT-1000 Navigation Reference Unit (NRU)
Unit and Part Numbers:	P/N: 51-100142

SW Part Number:	71-100145	
SW Version:	1.05	LT-Service Tool: v1.06 (minimum req. SW)
Release Date:	14. January 2019	

SW Update:	☒ Optional	☐ Recommended	☐ Mandatory
File Name:	LT-1000_v1.05.lti	File size:	120.1 kB

Checksum (MD5):	d7940284123f915817859361031b33ca
Downloads:	https://www.thrane.eu/lt-1000-nru
Contact:	support@thrane.eu

New Features

- SBAS

  GNSS Satellite-based Augmentation System (SBAS) is a method of improving the GNSS position from GPS, GLONASS and BeiDou using additional information broadcast by SBAS satellites or earth stations identified by a PRN. When SBAS satellites are end of life or otherwise taken out of service, another SBAS satellite, identified by another PRN, usually takes over. Hence, over time, a GNSS receiver should use different SBAS satellites.

  There are different SBAS systems around the world, including:

  - EGNOS in Europe (PRN: 123, 136)
  - WASS in North America (PRN: 131, 135, 138)
  - MSAS in Japan (PRN: 129, 137)
  - GAGAN in India (PRN: 127, 128, 132)

  Best performance is achieved by using the SBAS system covering your current location.

  o SBAS autoscan

    This release introduces a method for automatic SBAS PRN scanning as an alternative to statically configuring the list of PRNs. In this mode, the user does not need to keep the SBAS configuration up to date, as satellites are decommissioned. The autoscan mode has inferior performance compared to a static configuration of the PRNs. Use the command 'gnss sbas provider' autoscan to enable SBAS autoscan. Autoscan is the default mode.

o   Static SBAS satellite selection

The SBAS satellites can be statically configured by identifying the individual satellites (using the 'gnss sbas satellites' command) or selecting a specific SBAS system (using the 'gnss sbas provider' command).

- GNSS mode

  The GNSS receiver can now be configured in one of two modes: Automotive or Sea. The Sea mode is default, results in the best performance, and is the recommended mode. The Automotive mode should only be used for vessel moving faster than 45 knots or vessels used in lakes located above (or below) sea level. Configure the GNSS mode using the command 'gnss mode'.

- KVH format special output sentence

  We now support the special formatted KVH output sentence: %AAAA,BBBB,CCCC <cr><fr>, where % is sentence identifier, AAAA stabilized pitch attitude in tenths of degrees, BBBB stabilized roll attitude in tenths of degrees, and CCCC stabilized magnetic heading in tenths of degrees. The KVH output sentence can be configured using the LT-Service Tool v1.06 or newer.

Changes

- World Magnetic Model (WMM) update

  The WMM model describes the magnetic field of the Earth and is used to calculated true heading. As the Earth's magnetic field changes over time, international bodies update the WMM model every few years - typically scheduled every 5 years. The next update was scheduled in 2020. However, due to unusual rapid changes to Earth's magnetic field, especially near the magnetic poles, an unscheduled updated WMM model was released in December 2018. This software release includes version 2 of the WMM2015 model (WMM2015v2) for best performance.

- Default SBAS configuration change

  The default SBAS configuration is now 'autoscan'. Consider change to a specific satellite provider for best performance.

- Default GNSS mode change

  The default GNSS mode has been changed from 'automotive' to 'sea'.

Fixes

- SBAS

  Previous SW releases used static SBAS satellite selection with the following list of PRNs: 120, 124, 126, 129, 133, 135, 137, 138. That list of PRNs is outdated and prevented Differential GNSS (DGNSS) fix in some locations. The problem is solved by scanning for PRNs by default.

SW Update Procedure

Follow this procedure to upload a new application SW to the LT-1000 NRU:

1) Connect the LT-1000 NRU (NMEA 0183 interface) to a PC using one of these interfaces: USB to RS-422 adapter, serial RS-422 or RS-232. Details are available in the LT-1000 User & Installation Manual.
2) When the LT-1000 NRU is connected and powered (9 - 40 VDC) - start the LT-Service Tool by double-click on the 'LT-Service_v1.06.exe' file. The LT-Service Tool will automatically scan and detect any LT-1000 NRU connected to the PC. Type 'help' to get a full list of available commands.
3) Use the following command to upload the application SW: 'upload LT-1000_v1. 05.lti'.