

Lars Thrane A/S

September 19, 2016

LT-1000 NRU & LT-500 AHRS

Installation on Grand Banks 64 Aleutian

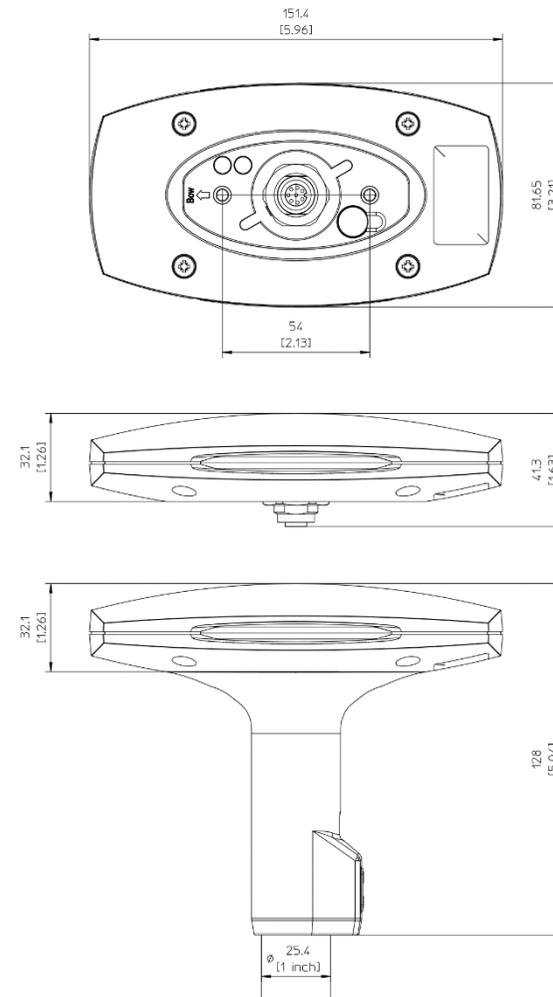
LT-1000 NRU – Key Features

- “ Navigation Reference Unit with 12 precision sensors
- “ True heading, magnetic heading, deviation, variation, roll, pitch, UTC time and date, position, satellite information, ground speed, course over ground, air pressure and temperature
- “ 72-ch. GNSS (GPS/GLONASS/BeiDou) satellite receiver with SBAS correction
- “ Simultaneously NMEA 0183 and NMEA 2000
- “ Configurable NMEA 0183 sentences (enable/disable, talker ID, output rate)
- “ Easy configurable NMEA 2000 termination resistor (open or terminated)
- “ Easy configurable NMEA 0183 data rate (4800 or 38400 baud)
- “ Each unit is factory calibrated and functional tested over temperature prior to shipment
- “ Worldwide maritime certification



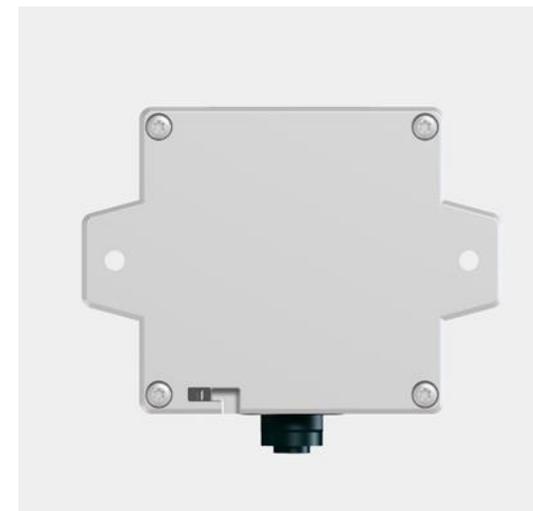
LT-1000 NRU - Specifications

- “ Certification & standards: CE, IEC 60945, IEC 60950, EN 300440-2, FCC, IC, RCM, RoHS, NMEA 0183, NMEA 2000
- “ Dimensions, with pole mount: 151.4 x 81.65 x 128.0 mm (5.96 x 3.21 x 5.04 in.)
- “ Weight, with pole mount: 240 g (0.53 lbs)
- “ Temperature (ambient), operational: -40°C to +55°C (-40°F to +131°F)
- “ Temperature (ambient), storage: -40°C to +85°C (-40°F to +185°F)
- “ Waterproof: IP46 / Humidity: 95% non-condensing @ 40°C
- “ Communication Interface: 8-pin female connector for NMEA 0183, NMEA 2000 and power
- “ Input power: 9-40 VDC
- “ Power consumption: < 1W
- “ Load Equivalent Number (LEN): 2
- “ Compass safe distance: 0.3 m (1 ft)



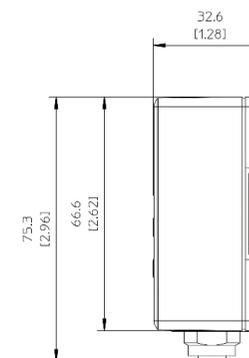
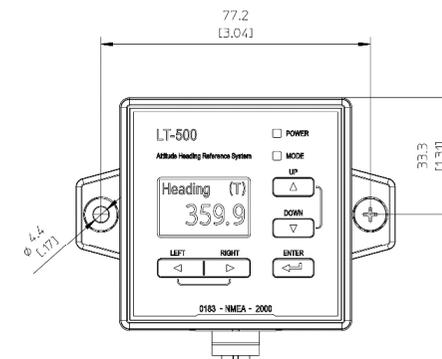
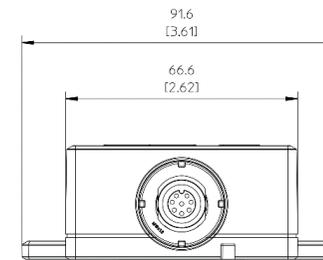
LT-500 AHRS – Key Features

- “ Attitude Heading Reference System with 11 precision sensors
- “ True heading, magnetic heading, deviation, variation, roll, pitch, air pressure, and temperature
- “ Display and control buttons for installation and service
- “ Simultaneously NMEA 0183 and NMEA 2000
- “ Configurable NMEA 0183 sentences (enable/disable, talker ID, output rate)
- “ Easy configurable NMEA 2000 termination resistor (open or terminated)
- “ Easy configurable NMEA 0183 data rate (4800 or 38400 baud)
- “ Mount in any orientation without compromising the high performance
- “ Each unit is factory calibrated and functional tested over temperature prior to shipment
- “ Worldwide maritime certification



LT-500 AHRS - Specifications

- “ Certification & standards: CE, IEC 60945, IEC 60950, FCC, IC, RCM, RoHS, NMEA 0183, NMEA 2000
- “ Dimensions: 91.6 x 75.3 x 32.7 mm (3.61 x 2.96 x 1.29 in)
- “ Weight: 104 g (0.23 lbs)
- “ Temperature (ambient), operational: -25°C to +55°C (-13°F to +131°F)
- “ Temperature (ambient), storage: -30°C to +80°C (-22°F to +176°F)
- “ Waterproof: IP42 / Humidity: 95% non-condensing @ 40°C
- “ Communication Interface: 8-pin female connector for NMEA 0183, NMEA 2000 and power
- “ Input power: 9-40 VDC
- “ Power consumption: < 1W
- “ Load Equivalent Number (LEN): 2
- “ Compass safe distance: 0.3 m (1 ft)



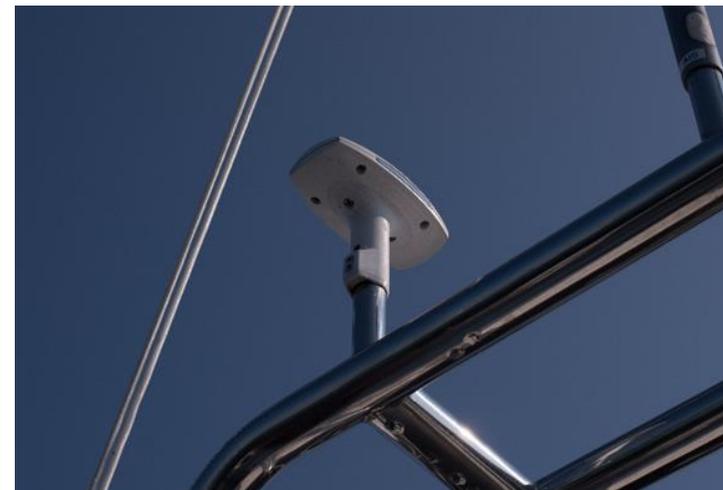
Grand Banks 64 Aleutian

- “ Grand Banks 64 Aleutian equipped with LT-1000 NRU and LT-500 AHRS for primary navigation equipment
- “ The GB64 originally had Sperry Marine Satellite Compass as navigation equipment (removed)
- “ The LT-1000 NRU and LT-500 AHRS provides heading and positioning information to:
 - “ Autopilot
 - “ ECDIS (radar & chart plotter)
 - “ VHF & MF-HF



LT-1000 NRU - Installation

- “ The LT-1000 NRU is mounted on the radar arch (targa) using the 1” pole mount
- “ The ‘old’ Sperry Marine Satellite Compass (antennas) is visible on the radar arch on the starboard side of the LT-1000 NRU
- “ The LT-1000 NRU has a built-in immunity filter to protect the GNSS receiver from radio transmitting antennas (VHF, UHF, MF-HF, Inmarsat, Iridium, transmitting VSAT, etc.)
- “ The LT-1000 NRU shall be mounted with a minimum angle of 20 degrees towards a radar antenna (above or below)
- “ Further mounting considerations can be found in the LT-1000 NRU User & Installation Manual



LT-500 AHRS - Installation

- “ The LT-500 AHRS is installed indoor, in the bridge roof (up-side-down) and pointing towards the bow of the vessel
- “ By use of the ‘auto level’ function the LT-500 AHRS can be mounted in any orientation. The ‘auto level’ function can be accessed from the built-in user interface (buttons and display)
- “ Mount the unit away from possible magnetic disturbances (e.g. loudspeakers and power cables)
- “ Further mounting considerations can be found in the LT-500 AHRS User & Installation Manual



Navigation Details

- “ The LT-1000 NRU and LT-500 AHRS are internally connected on a NMEA 2000 backbone, which is connected to Garmin GMI-20 displays (to show heading information)
- “ The LT-1000 NRU is configured to 4800 baud on the NMEA 0183 interface and connected via a buffer to the autopilot, ECDIS, VHF, and MF-HF system
- “ The LT-500 AHRS is configured to 38400 baud and connected directly to the autopilot and ECDIS system as the primary navigation equipment (Gyro 1)



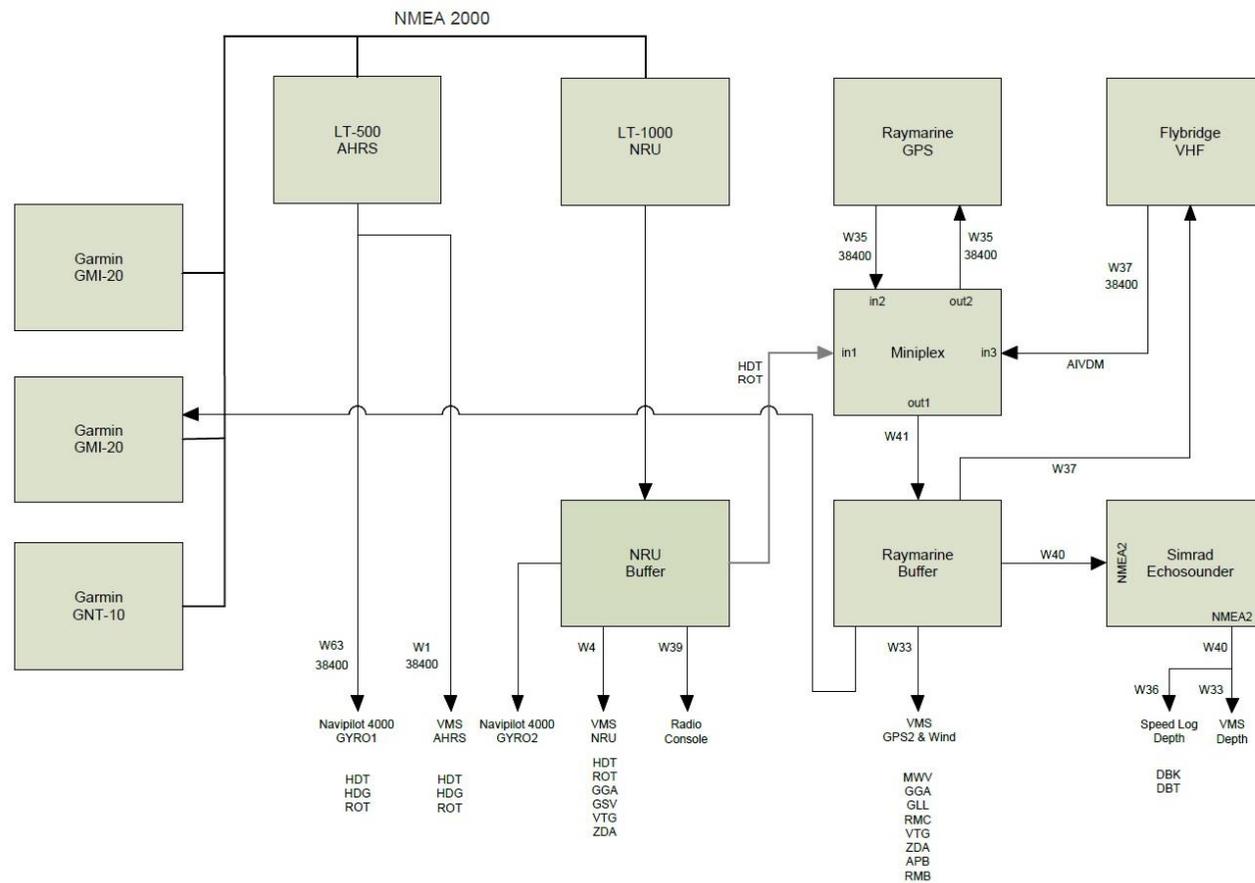
Note:

By connecting the LT-500 AHRS and the LT-1000 NRU on the NMEA 2000 backbone, the LT-500 AHRS is receiving position and time and can be configured to output true heading. Otherwise, the LT-500 AHRS will output magnetic heading. For further details, see the LT-500 AHRS User & Installation Manual.

GB64 Navigation Wiring Diagram

Heading & GPS Interfaces

NMEA 0183 & NMEA 2000



External Navigation Equipment

“ The following external navigation equipment is installed and interfaced from the LT-1000 NRU and LT-500 AHRS on the GB64:

“ NMEA 2000:

“ Garmin GMI-20 (*heading*)

“ NMEA 0183:

“ Sperry Marine Autopilot – NAVIPILOT 4000 (*heading, rate of turn*)

“ Sperry Marine ECDIS:

“ Chart plotter (*heading, rate of turn, position*)

“ Radar (*fast-heading*)

“ SAILOR 6222 VHF/DSC Class A (*UTC time & date, position*)

“ Icom MF/HF (*UTC time & date, position*)

Contact Details

Lars Thrane A/S

Phone: +45 88 30 10 00

Fax: +45 88 30 10 09

Web: www.thrane.eu

Email: company@thrane.eu

Address: 55°50'13.15"N 012°31'54.20"E

Stubbeled 2

2950 Vedbæk

Denmark

VAT No.: DK-36042443



Company headquarters in Denmark

North of Copenhagen

