

## Tech Notes

### LT-1000 NRU vs. Furuno NavPilot-500 & 700 Series

This tech notes describes how to configure a LT-1000 NRU to work properly with a Furuno NavPilot-500/700 series autopilot system. This tech notes do not describe how to configure the Furuno NavPilot-500/700 series autopilot. After configuring the LT-1000 NRU, connect the LT-1000 NRU NMEA 0183 interface to the Furuno Navpilot-500/700 series autopilot on interface TB6 or TB7. It is important that the Furuno NMEA 0183 interface is configured to the correct baud rate: 4800 or 38400 baud.

#### Required Documentation

95-100178 LT-1000 User & Installation Manual Rev. 1.00

#### Required Hardware

Personal Computer or Laptop (Windows), USB to Serial Adapter (RS-422)

#### Minimum Software Version Requirements

LT-1000 NRU: v1.02

LT-Service Tool: v1.04

#### Instructions

- 1) Connect the PC to the LT-1000 NRU as described in the LT-1000 User & Installation Manual, see *Connecting LT-Service Tool* on page 25.
- 2) Start the LT-Service Tool by double-click on the file: LT-Service\_v1.04.exe. You will now see the following picture:

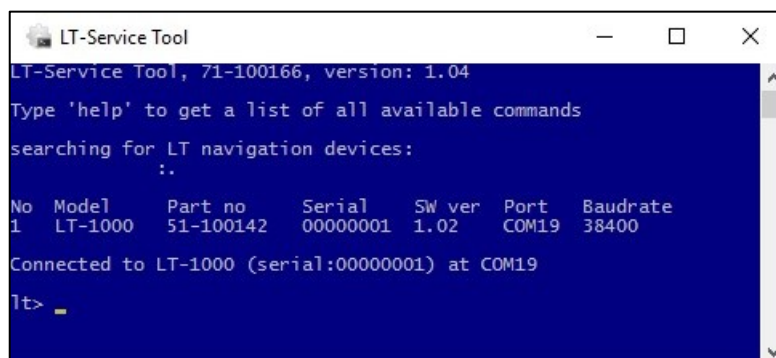


Figure 1: LT-Service Tool v1.04 connected to a LT-1000 NRU with 38400 baud rate.

- 3) The LT-1000 NRU NMEA 0183 baud rate is by default configured to 4800 baud as illustrated above. The Furuno Navpilot-500/700 series supports both 4800 and 38400 baud. If most navigation information must be available in the Furuno Navpilot-500/700 series system, then change the LT-1000 NRU baud rate to 38400 baud.

<b>LT-1000 NRU - NMEA 0183</b>		
<b>Sentences</b>	<b>4800 baud</b>	<b>38400 baud</b>
DTM	Disable	Disable
GGA	Disable	1 Hz
GLL	Disable	Disable
GSA	Disable	Disable
RMC	1 Hz	1 Hz
VTG	Disable	1 Hz
ZDA	Disable	1 Hz
GSV	Disable	Disable
HDG	Disable	10 Hz
HDM	Disable	Disable
HDT	10 Hz	10 Hz
ROT	Disable	10 Hz
THS	Disable	Disable
GPatt	Disable	Disable
MDA	Disable	Disable
XDR	Disable	Disable

- 4) The above table illustrates the requirements for the NMEA 0183 sentences on 4800 and 38400 baud
- 5) Configuration: **4800 baud**

The LT-1000 NRU is by default configured to 4800 baud. For further details, see the LT-1000 User & Installation Manual, *DIP-switch and LEDs* on page 21.

The following LT-Service Tool commands must be used in order to configure the NMEA 0183 sentences and GNSS receiver:

```
LT> nmea0183 sentences RMC:1000 HCHDT:100
```

```
LT> gnss receiver GPS SBAS
```

```
LT> reboot
```

The configuration can be verified with the following commands:

```
LT> stat or mon
```

*Note:* It is possible to configure Talker ID = HE. Write 'HEHDT:100' instead of 'HCHDT:100'.

6) Configuration: **38400 baud**

The LT-1000 NRU is by default configured to 4800 baud. For changing this configuration to 38400 baud, see the LT-1000 User & Installation Manual, DIP-switch and LEDs on page 21.

The following LT-Service Tool commands must be used in order to configure the NMEA 0183 sentences and GNSS receiver:

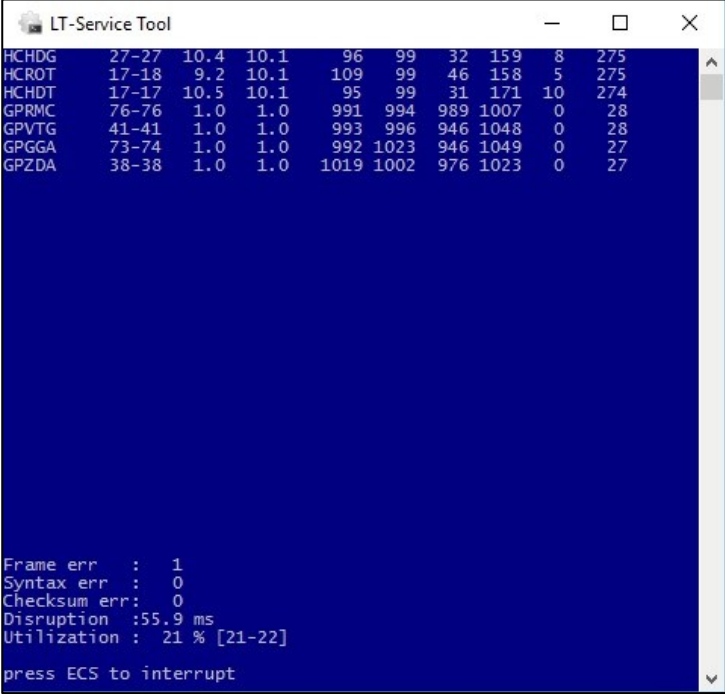
```
LT> nmea0183 sentences GGA:1000 RMC:1000 VTG:1000 ZDA:1000 HCHDG:100 HCROT:100  
HCHDT:100
```

```
LT> gnss receiver GPS SBAS
```

```
LT> reboot
```

The configuration can be verified with the following commands:

```
LT> stat or LT> mon
```



```
LT-Service Tool
HCHDG  27-27  10.4  10.1    96  99   32  159   8  275
HCROT  17-18   9.2  10.1   109  99   46  158   5  275
HCHDT  17-17  10.5  10.1    95  99   31  171  10  274
GPRMC  76-76   1.0   1.0    991  994  989 1007   0  28
GPVTG  41-41   1.0   1.0    993  996  946 1048   0  28
GPGGA  73-74   1.0   1.0    992 1023  946 1049   0  27
GPZDA  38-38   1.0   1.0   1019 1002  976 1023   0  27

Frame err : 1
Syntax err : 0
Checksum err: 0
Disruption :55.9 ms
Utilization : 21 % [21-22]
press ECS to interrupt
```

Figure 2: LT-Service Tool v1.04 / LT-1000 NRU NMEA 0183 configured to 38400 baud – ‘stat’ command output.

7) In case you need additional support from Lars Thrane A/S – please generate a diagnostic report with the following command and send it to [support@thrane.eu](mailto:support@thrane.eu):

```
LT> diag
```