Tech Notes

USB to NMEA Adaptor (RS-232)

This Tech Notes describes how to connect a USB to NMEA Adaptor (RS-232) from Digital Yacht to the LT-Navigation devices (LT-1000 NRU, LT-500 AHRS, and LT-300 GNSS) via the 8-pin multi cable from Lars Thrane A/S. The 8-pin multi cable is simultaneously supporting NMEA 0183 and NMEA 2000. Use the LT-Service Tool for optional configuration, debug, and maintenance of the LT-Navigation devices. The LT-Service Tool is a PC program, which may run on any Windows PC. The LT-Service Tool is communicating with the LT-Navigation device over the NMEA 0183 interface.

NOTE: This Tech Notes describes how to connect the USB to NMEA Adaptor (RS-232) from Digital Yacht to a LT-Navigation device via the 8-pin multi cable. Many USB to NMEA Adaptors using the FTDI chip technology are available in the market today. Other manufactures of USB to NMEA Adaptors (RS-232) cannot be guaranteed to work as the product described in this Tech Notes from Digital Yacht. The quality, wire color, and wire designation may differ from what is listed and illustrated in this Tech Notes.

Required Documentation

Quick Start Guide, USB to NMEA Serial Adaptor Cable (USB-NMEA-VR1.01), Digital Yacht

Required Hardware

Personal Computer or Laptop (Windows)

USB to NMEA Adaptor (PN: ZDIGUSBNMEA), Digital Yacht

LT-Navigation device (LT-1000 NRU, LT-500 AHRS, or LT-300 GNSS)

Minimum Software Version Requirements

LT-Service Tool: v1.05 (or newest available)

Figure 1: USB to NMEA Adaptor from Digital Yacht

Instructions

1)   Read the Quick Start Guide from Digital Yacht to make sure that you understand the installation requirements and setup conditions for using this USB to NMEA Adaptor (RS-232).

2) Prepare the wires from both the USB to NMEA Adaptor (RS-232) and the 8-pin multi cable. The 8-pin multi cable from Lars Thrane A/S is delivered as 'simple-cut'. All relevant wires must be isolated and prepared before connecting the USB to NMEA Adaptor with the 8-pin multi cable, e.g. using a strip connector. Figure 2 is illustrating the USB to NMEA Adaptor and 8-pin multi cable connected.
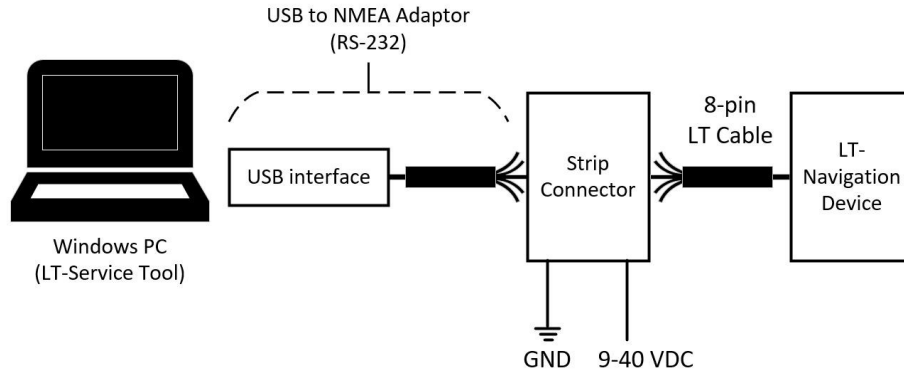

Figure 2: USB to NMEA Adaptor (RS-232) connected to 8-pin multi cable via strip connector. External power must be supplied for the LT-Navigation device.

3) The USB to NMEA Adaptor wire color and designation is illustrated in Figure 3. Further details can be found in the Quick Start Guide for the USB to NMEA Adaptor (see required documentation).
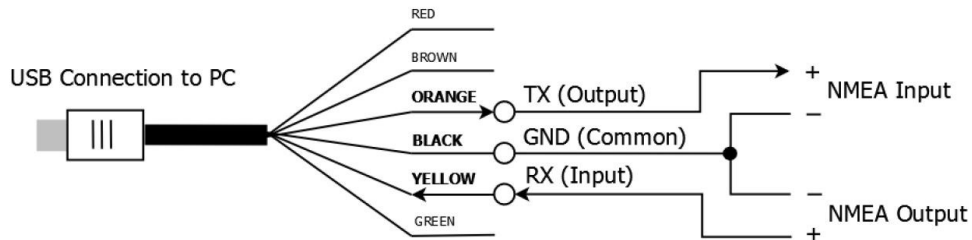

Figure 3: USB to NMEA Adaptor (RS-232) from Digital Yacht (PN: ZDIGUSBNMEA)

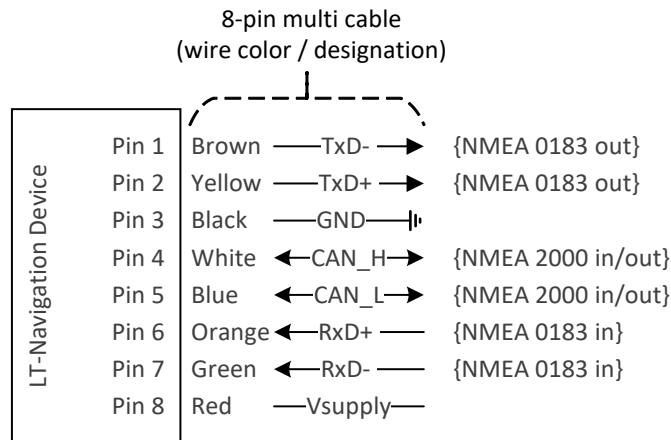4) The 8-pin multi cable wire color and designation is illustrated in Figure 4.

Figure 4: 8-pin multi cable wire color and designation for both NMEA 0183 and NMEA 2000 data. Data directions are illustrated.

5) An RS-232 port shall be connected to the LT-Navigation device / 8-pin multi cable as illustrated in Figure 5.
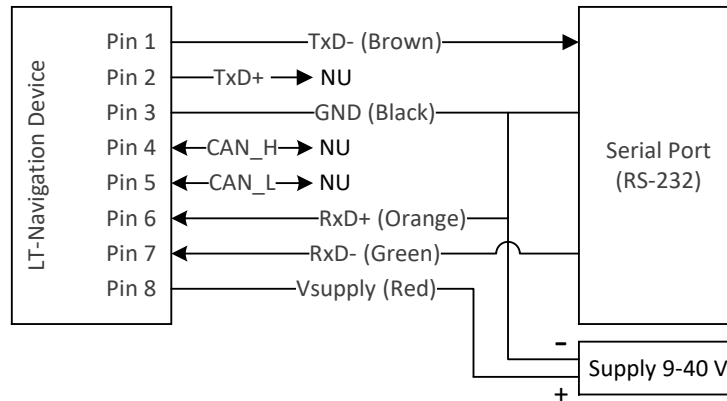

Figure 5: Connecting a LT-Navigation device (via the 8-pin multi cable) to an RS-232 port or interface.

6) The wire colors and designations for connecting the USB to NMEA Adaptor (RS-232) with the 8-pin multi cable are illustrated in Figure 6. Remember to connect the Black (GND) and Orange (RxD+) wires on the 8-pin multi cable. The LT-Navigation device requires 9-36 VDC from an external power source. The USB to NMEA Adaptor is powered from the PC/USB interface.
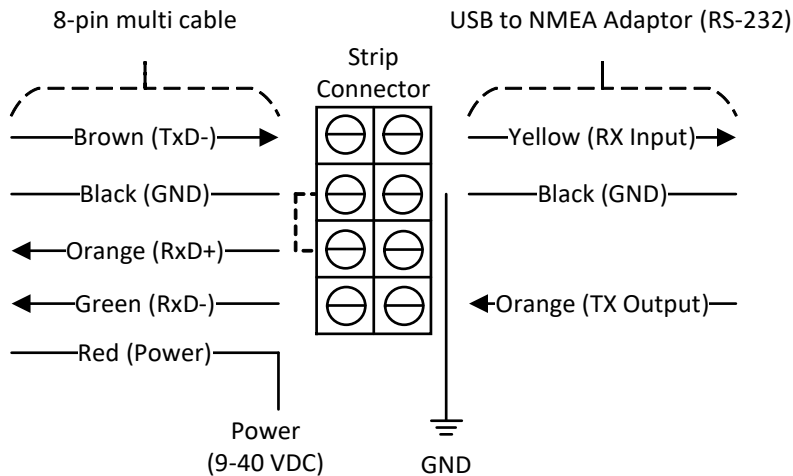

Figure 6: Connecting an USB to NMEA Adaptor (RS-232) from Digital Yacht to the 8-pin multi cable. Cable wire colors and designations are illustrated. LT wires GND and RxD+ shall be connected together.

NOTE: The USB to NMEA Adaptor from Digital Yacht is tested with respective the 10m 8-pin multi cable and the 30m 8-pin multi cable from Lars Thrane A/S.