

# Quick Installation Guide

## LT-500 Attitude Heading Reference System

Congratulations on your purchase of the LT-500 Attitude Heading Reference System (AHRS)!


The LT-500 AHRS is a small, compact and very advanced unit with 11 precision sensors: Magnetometers, Gyros, Accelerometers, Barometer, and Thermometer. Use the built-in MMI interface for configuration of the unit.

**NOTE:** Refer to the 95-100225 LT-500 User and Installation Manual for detailed information on installation requirements and guidance.

### Unpacking

Unpack the LT-500 AHRS and check that the following items are present:

- LT-500 AHRS (incl. screws for installation)
- 10m Cable Multi 8-pin Simple-Cut (M)
- Screw-in Conn. NMEA 2000 Micro-C (M)
- Quick Installation Guide (*this document*)
- Safety Instructions Sheet
- Unit Test Sheet



**WARNING**

Refer to the 95-100225 LT-500 User & Installation Manual for Safety Instructions.

### Installation

The LT-500 AHRS is configured to 4.800 baud (NMEA 0183) and 'Open' (NMEA 2000) from the factory. Alternative settings are 38.400 baud (NMEA 0183) and 'Terminated' (NMEA 2000). Changes can be applied via the built-in MMI interface or via the external LT-Service Tool.

Mounting considerations:

- Mount the unit indoor (ventilation hole shall be free and not exposed to direct water)
- Mount the unit in any position (for further details see LT-500 User & Installation Manual)
- Mount the unit on a rigid structure with a minimum of exposure to vibration and shock
- Mount the unit in an area with an ambient temperature between -25°C to +55°C (-13°F to +131°F)
- Mount the unit as far as possible from magnetic interference and power cables

**IMPORTANT:** Use the non-magnetic self-cutting A4 stainless steel screws, which are included in the box or screws with similar non-magnetic physical characteristics.

Connecting cables: The LT-500 AHRS 8-pin female connector and the multi cable (simple-cut) interconnect details are listed in Table 1 and Figure 1.

LT-500 AHRS Interconnect Details		
Pin No.	Wire Color	Wire Designation
1	Brown	TxD-
2	Yellow	TxD+
3	Black	GND
4	White	CAN_H
5	Blue	CAN_L
6	Orange	RxD+
7	Green	RxD-
8	Red	Vsupply

TABLE 1: LT-500 AHRS MULTI CABLE WIRE COLOR AND DESIGNATION.

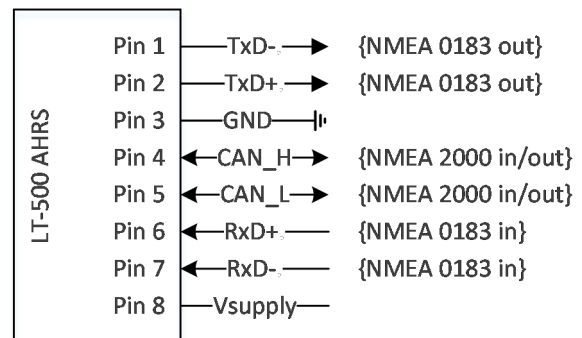


FIGURE 1: LT-500 AHRS TRANSMIT AND RECEIVE DIRECTIONS.

**Deviation calibration (figure 8-pattern)**

The LT-500 AHRS requires a deviation calibration, as illustrated in Figure 2, when mounting, connecting, and configuration has been completed. The calibration must be performed in open and calm waters, and will determine the ship’s influence on the magnetic sensors.

The LT-500 AHRS will indicate absence of a valid calibration by outputting heading (true and magnetic) with a 5 degrees resolution. When a calibration has been successful, the heading will be output with full resolution.

The LT-500 AHRS will automatically perform a calibration when it detects the vessel is sailing a specific pattern. To trigger a calibration, guide the vessel through the following pattern. The best result is achieved at low speed (SOG), low rate of turn (ROT) and in calm waters.

**Step 1**

Keep a steady course ( $\pm 5^\circ$ ) for min. 10 s.  
SOG: 2–12 knots

**Step 2**

Make a full circle (360-450°) clockwise or counterclockwise  
ROT: 2-6°/s (1 -3 min.)  
SOG: 2-12 knots

**Step 3**

Make a full circle (360-450°) in opposite direction  
ROT: 2-6°/s (1 -3 min.)  
SOG: 2-12 knots

**Step 4**

Keep a steady course ( $\pm 5^\circ$ ) for min. 10 s.  
SOG: 2–12 knots

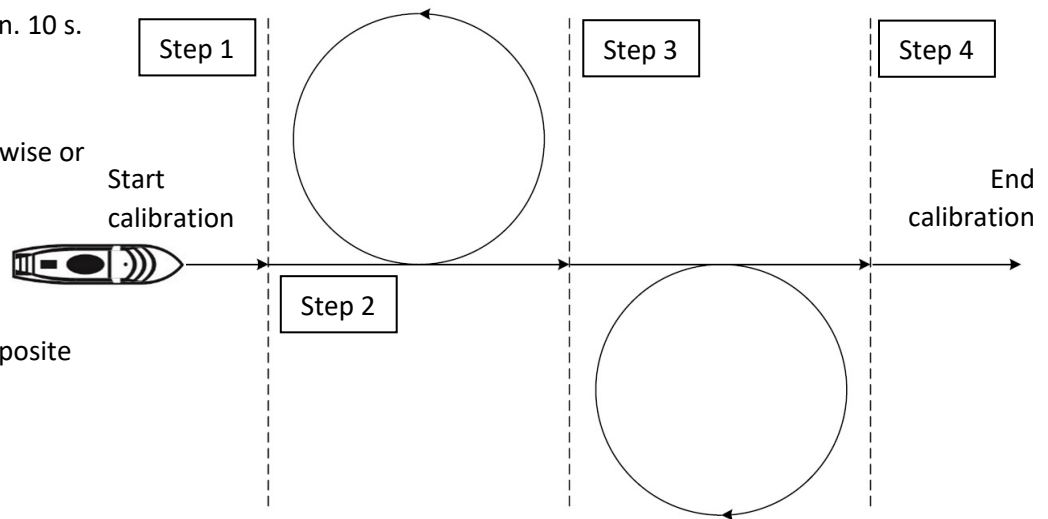


FIGURE 2: DEVIATION CALIBRATION PATTERN FOR THE LT-500 AHRS.

**IMPORTANT:** If the LT-500 AHRS is physically moved or rotated, it is required to perform a new calibration. Use the LT-500 MMI interface to reset or deactivate the deviation calibration pattern. The number of successful deviation calibrations can be readout from the LT-500 MMI, in the submenu Status.

**Configuration**

Use the LT-500 AHRS built-in MMI interface for configuration and offset adjustments. All relevant settings and setup installation features are available from the MMI interface. Use the LT-Service Tool for additional configuration and service of the LT-500 AHRS.

MMI interface (subset of features):

- NMEA 0183 baud rate
- NMEA 2000 termination
- Deviation calibration & options
- Variation
- Auto level
- Heading offset
- Roll offset
- Pitch offset
- Vertical offset

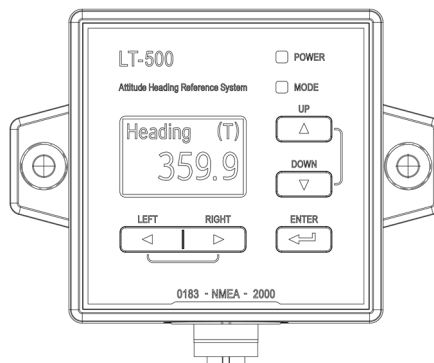


FIGURE 3: LT-500 AHRS MMI INTERFACE (LEDs, PUSH BUTTONS, AND DISPLAY).