

# Datasheet

## Lodestar Subsea AHRS



**Lodestar is a solid-state Attitude and Heading Reference System (AHRS) highly optimised for cost, size, weight, and power (C-SWaP).**

The instrument is a turn-key solution comprised of carefully selected high-grade and highly reliable inertial sensors integrated into a Sonardyne in-house designed Inertial Measurement Unit (IMU).

The selected inertial sensors are the standard for commercial aviation with a proven 20+ year track record. These sensors have a highly desirable characteristic being insensitive to vibration, temperature changes and having very limited initial errors. The result is a system which is highly suitable for the marine environment where performance, robustness and data integrity need to be available from initialisation, even during the harshest conditions.

Lodestar requires no external aiding and settles robustly in dynamic conditions in less than 5 minutes.

On-board data storage and backup battery functionality ensures continued operation and eliminates the risk of data-loss even if communications or external power is lost.

Power-pass through to external aiding sensors is supported to ease integration requiring only a single cable for comms and power.

If a full INS solution is required, the Lodestar can easily be field upgraded to a SPRINT system.

This makes the Lodestar a flexible and future proof solution for both ROV guidance and survey applications.

Lodestar has a proven track record spanning more than 10 years in the field in diverse applications from ROV guidance and autopilot to demanding survey applications.

The instrument is available in 4,000 and 6,000 m depth ratings with a variety of connector options and configurations.

### Applications Include

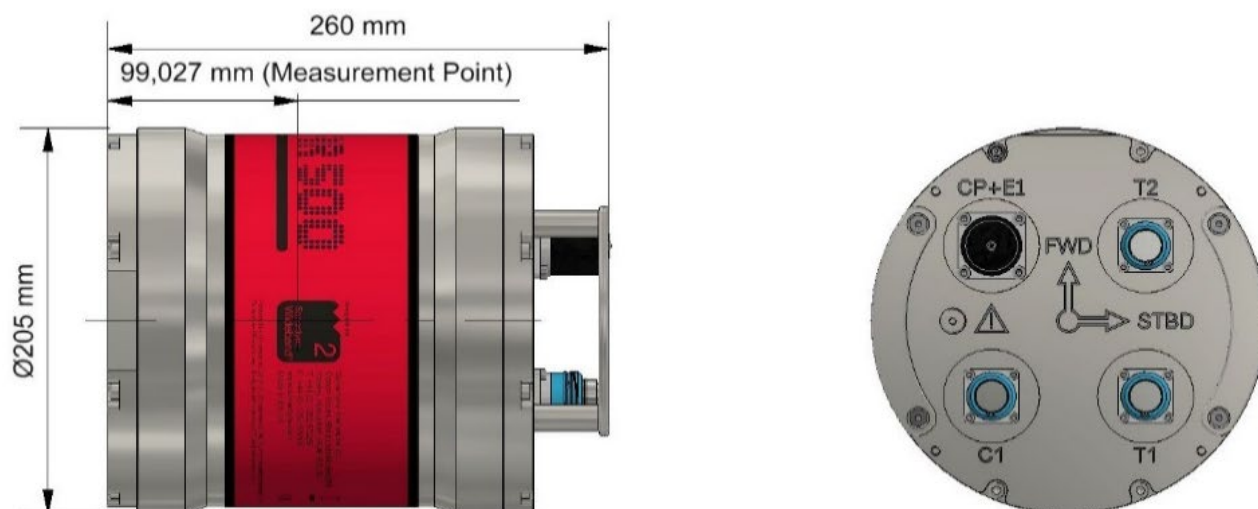
- ROV control & guidance
- Offshore construction

### Key Features

- Turn-key solution for motion sensor and gyrocompass
- Up to 0.08° heading accuracy
- 0.01° roll and pitch accuracy
- 5 minute AHRS settling time
- Fast follow up speed of 900°/sec
- MTBF inertial sensors (gyros and accelerometers) > 400,000 hours
- Choice of depth ratings: 4,000 and 6,000 m
- Choice of connectors: Seacon (standard) or Seanet® (for use with FMC Schilling Robotics ROV)
- Transport approved rechargeable Li-ion battery back-up as standard
- 8 GB internal memory allows post processing and remote diagnostics
- Ethernet and serial interfaces
- Export is not ITAR controlled
- Lodestar AHRS can be remotely upgraded to SPRINT INS

# Specifications

## Lodestar Subsea AHRS



Performance	Lodestar 300	Lodestar 500	Lodestar 700
Heading	0.2°	0.1°	0.08°
AHRS Settle Time	<5 minutes in dynamic conditions		
Roll and Pitch	0.01°		
Power	Lodestar 300	Lodestar 500	Lodestar 700
Power Requirement	20–50 V dc, 15 W nominal, 35 W maximum		
Power Pass Through	3 x for external aiding sensors (up to 3A per sensor)		
Back Up Battery Type/Life	Li-ion/5 minutes		
Data/Comms	Lodestar 300	Lodestar 500	Lodestar 700
Data Storage	8 GB internal memory		
Serial Ports/Protocol	4x RS232 or RS485		
Other Ports	1x ethernet, 4 triggers		
Output Rate	Up to 100 Hz		
Output Telegrams <sup>1</sup>	Industry standard AHRS/INS telegrams including acceleration and rotation rates		
Mechanical	Lodestar 300	Lodestar 500	Lodestar 700
Connectors options	4x Seacon / Seanet 1x Seacon / Seanet		
Mechanical Construction	Titanium		
Dimensions (Diameter x Height)	4,000 m (Seacon)	205 x 260 mm	
	6,000 m (Seacon)	205 x 280 mm	
	4,000 m (Seanet)	205 x 250 mm	
Weight in Air/Water <sup>2</sup>	4,000 m	18.5/11.5 kg	
	6,000 m	22/14 kg	
Environmental	Lodestar 300	Lodestar 500	Lodestar 700
Depth Rating	4,000 / 6,000 m		
Temperature	-20 to +55°C (operating), -20 to +60°C (storage)		
Shock Rating	22 g, 11 ms half sine		

<sup>1</sup> Specific outputs may be limited below quoted performance for reasons of export classification and control and should not be used as IMU data.

<sup>2</sup> Estimated Weights.