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Datasheet

Lodestar 500 Subsea AHRS / SPRINT 500 Subsea AAINS

Description

Lodestar 500 is a combined solid state Attitude and Heading Reference System (AHRS) and optional SPRINT Acoustically Aided Inertial Navigation System [AAINS].

The instrument is comprised of three high grade, highly reliability, commercially available, Ring Laser Gyros (RLG) and accelerometers. The sensors are also the standard for commercial aviation with a proven 15+ year track record.

Lodestar AHRS requires no external aiding and can settle in 5 minutes or less in dynamic conditions. SPRINT INS adds advanced Aided Inertial Navigation that runs concurrently with the Lodestar AHRS algorithm.

This dual algorithm capability is unique in the market and allows for dual use from one inertial instrument, e.g. Lodestar AHRS for ROV, SPRINT INS for Survey.

On-board data storage and backup battery functionality ensures continued operation and no data-loss even if communications or external power is lost.

SPRINT INS interfaces to aiding sensors such as a USBL or LBL transceivers, a DVL, pressure sensor and sound speed. Power-pass through to aiding sensors is supported to ease integration.

Lodestar and SPRINT have a proven track record spanning 10 years in the field in diverse applications from ROV guidance and autopilot to demanding survey applications such as multibeam Out Of Straightness surveys and sparse-LBL using tightly coupled 6G acoustics.

The unit is available in 4000 and 6000 metre depth ratings and is one of the smallest form factor subsea inertial instruments available.

Applications Include

- ROV and Towfish Positioning
- Hydrographic Survey
- Offshore Construction
- As-Laid and Out of Straightness
- Multibeam Survey
- Touchdown Monitoring
- Structure Placement

Key Features

- Single box solution for motion sensor, gyrocompass and AAINS
- SPRINT provides concurrent AHRS and AAINS capability for dual use
- 0.1° (AHRS) to 0.04° (INS) secant latitude heading accuracy
- 0.01° roll and pitch accuracy
- 5 minute settling time
- Fast follow up speed of 900°/sec**
- MTBF inertial sensors (RLG and Accelerometer) > 400,000 hours
- Choice of depth ratings: 4,000 and 6,000 metres
- Choice of connecters: Seacon (standard) or Seanet® (for use with FMC Schilling Robotics ROV)
- Transport approved rechargeable li-ion battery back-up as standard
- Minimum internal memory of 8 GB allows post processing and remote diagnostics
- Ethernet interface
- Lodestar AHRS can be remotely upgraded to SPRINT INS

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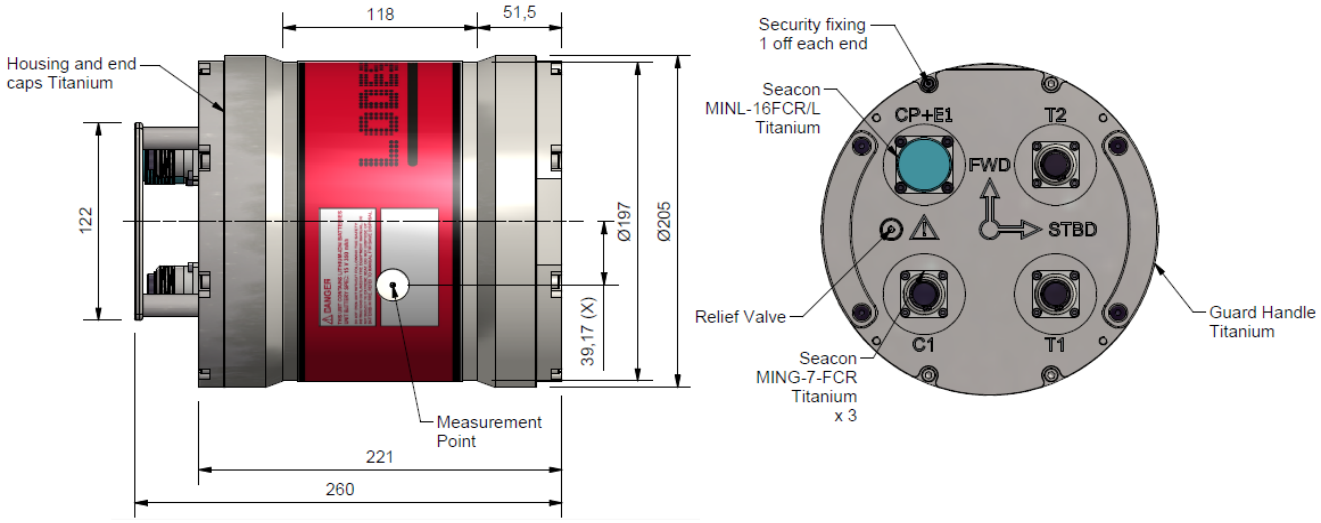
Specifications

Lodestar 500 Subsea AHRS / SPRINT 500 Subsea AAINS



Feature		Type 8084-000-4510	Type 8084-000-9908	Type 8084-000-6510
Depth Rating		4,000 metres	4,000 metres	6,000 metres
Physical	Size	205 mm Dia. x 260 mm	205 mm Dia. x 250 mm	205 mm Dia. x 280 mm
	Weight in Air / Water*	18.5 kg / 11.5 kg	18.5 kg / 11.5 kg	22 kg / 14 kg
	Mechanical Construction	Titanium	Titanium	Titanium
	Connectors	4 x Seacon	4 x Seanet®	4 x Seacon
Performance	Heading	Accuracy (Secant Latitude)	0.1° (Lodestar AHRS) 0.04° (SPRINT INS)	
		Settle Time	5 minutes in dynamic conditions (Lodestar AHRS) Instantaneous (SPRINT INS)	
		Follow Up Speed	900° / second**	
	Roll and Pitch	Accuracy	0.01°	
	Maximum Acceleration	10.0 g**		
	SPRINT Aided INS	Aiding Supported	USBL, Depth, DVL, Zero Velocity, Manual Position, LBL	
		USBL Aided	3 times improvement in precision over 'raw' USBL	
		USBL and DVL Aided	4-10 times improvement in precision over 'raw' USBL	
		DVL Aided Accuracy	0.1% position error for distance travelled	
Upgrades	Lodestar 500 AHRS can be remotely upgraded to SPRINT 500 INS			
Environmental	Operating Temperature	-20°C to +55°C		
	Storage Temperature	-20°C to +60°C		
	Shock Rating	22 g, 11 ms half sine		
Power	Power Requirement	24 / 48 V DC, 15 W nominal, 35 W max		
	Back Up Battery Type / Life	Li-ion / 5 minutes		
Data / Comms.	Data Storage	8 GB internal memory		
	Digital Ports/Protocol	up to 4 Digital Ports / RS232 or RS485		
	Other Ports	1 × Ethernet, 4 Triggers		
	Output Rate	Up to 100 Hz		
	Output Telegrams	Industry standard AHRS/INS telegrams including acceleration and rotation rates		

*Estimated Weights

**Specific outputs such as acceleration and rotation rates may be limited below quoted performance for reasons of export classification and control

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001 =