

Datasheet

Lodestar – Subsea Attitude & Heading Reference System



Description

Lodestar is a solid state IMO approved Attitude and Heading Reference System (AHRS). The unit is comprised of six sensing elements, three Ring Laser Gyros (RLG) and three linear accelerometers, running a Sonardyne developed gyrocompass algorithm.

Incorporating a rugged housing, Lodestar AHRS can be supplied to suit any depth of subsea application. With a battery back up capability supplied as standard, the unit is able to continue to communicate attitude during vehicle brown-outs. Pole mounted applications can provide a more accurate solution to the multibeam or USBL operation.

The Lodestar AHRS utilises a genuine gyrocompassing algorithm capable of precise heading, roll and pitch estimation in dynamic conditions without the need for external aiding inputs or vessel manoeuvres.

Lodestar also applies a heave algorithm to the vertical motion of the unit resulting in a robust heave measurement solution. Therefore, the Lodestar product is suitable for any application that requires the accurate measurement of heading, heave, roll, and pitch in a highly dynamic environment.

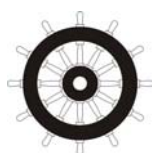
Where high accuracy and a risk free solution is required, the Lodestar AHRS is an ideal replacement for the motion sensor and gyrocompass package, due to its dynamic capability and fast spin up time.

The Sonardyne Lodestar has been designed with reliability as a priority. The unit comprises of high grade, commercially available, IMU components with a very high meantime between failure (MTBF).

Lodestar is compatible with all Sonardyne LBL and USBL products, as well as multiple applications in the offshore and survey marketplace.

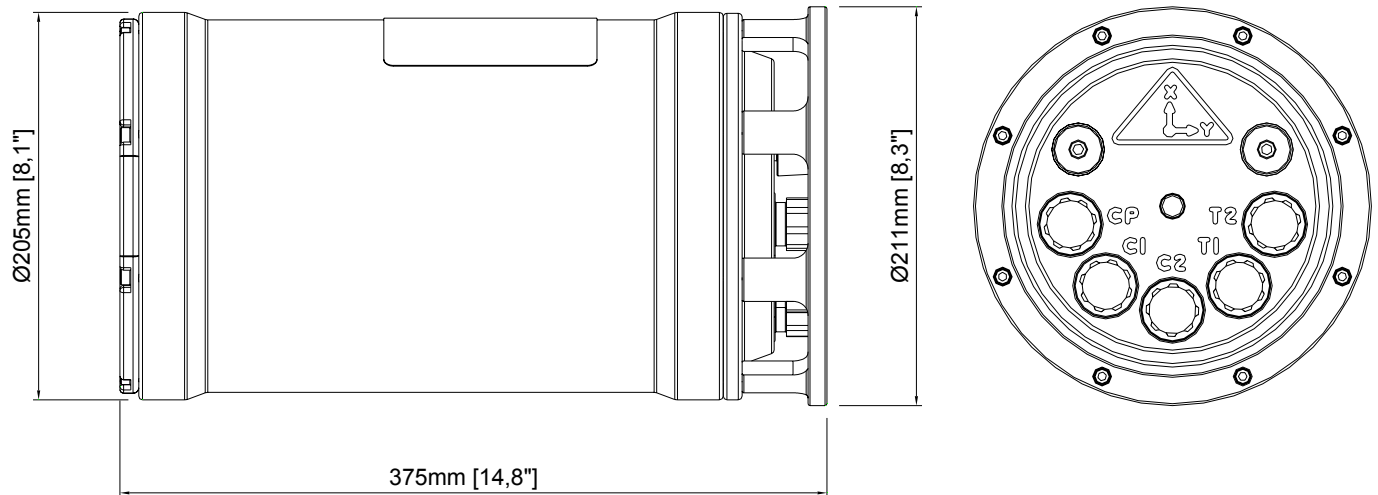
Key Features

- Single box solution for motion sensor and gyrocompass
- 0.1° heading accuracy
- 0.01° roll and pitch accuracy
- <5 minute settling time
- 5cm / 5% heave accuracy
- Fast follow up speed of 500° / sec
- MTBF RLG >300,000 hours
MTBF Lodestar >50,000 hours
- Choice of depth ratings: 1,000, 3,000 and 5,000 metres
- Surface version available
- Transport approved Li-Ion battery back up as standard
- Minimum internal memory of 8GB (expandable to 32GB) allows post processing of a 2 day mission
- Designed and approved to IMO Resolution A424(XI)
- Ethernet interface
- INS ready



Specifications

Lodestar – Subsea Attitude & Heading Reference System



Feature		Type 8084-000-1110	Type 8084-000-3110	Type 8084-000-5310
Depth Rating		1,000 metres	3,000 metres	5,000 metres
Physical	Size	211mm Dia. x 375 mm	214mm Dia. x 405mm	205mm Dia. x 409mm
	Weight in Air / Water	14.0kg / 3.0kg	22kg / 8kg	39kg / 28kg
	Mechanical Construction	Anodised Aluminium	Anodised Aluminium	Super Duplex S/Steel

Specifications Common To All Type 8084 Subsea Lodestar Units.

Attitude	Heading	Range	0-360°
		Accuracy	0.10° secant latitude rms
	Roll & Pitch	Settle Time	<5 minutes
		Follow Up Speed	500° / second
		Resolution	0.01°
		Range	±180° (No physical limit)
Heave	Accuracy	0.01°	
	Resolution	0.01°	
	Range	±99m	
	Accuracy (Real Time)	5cm or 5% (Whichever the greater)	
Environmental	Operating Temperature	Bandwidth	User selectable
		Resolution	0.01m
		Shock Rating Operational	-10°C to +55°C
		Power Requirement	22g, 11ms half sine
		Back Up Battery Type / Life	18 – 50V DC, 15W nominal, 20W peak
Digital Output	Data Storage	Li-Ion / 3 hours	
	Number of Digital Ports/Protocol	8GB internal memory (expandable to 32GB)	
Power Output	Other Ports	4 Digital Ports / RS232 or RS485	
	Number of Power Ports	1 × Ethernet	
Optional INS	Upgrade Path	2 × 48V DC 20W and 1 × 12V DC 0.5W output	
	Navigation Error (Free Inertial)	Yes	
	Maximum Acceleration	>1.5NM/hr CEP	
		2.5g	