

Datasheet

Lodestar – Attitude & Heading Reference System (Subsea)



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 utilizes 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.

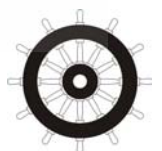
Where high accuracy and a risk free solution is required, the Lodestar AHRS is an ideal replacement for the motion sensor and gyrocompass package, due to its dynamic capability and fast spin up time.

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.

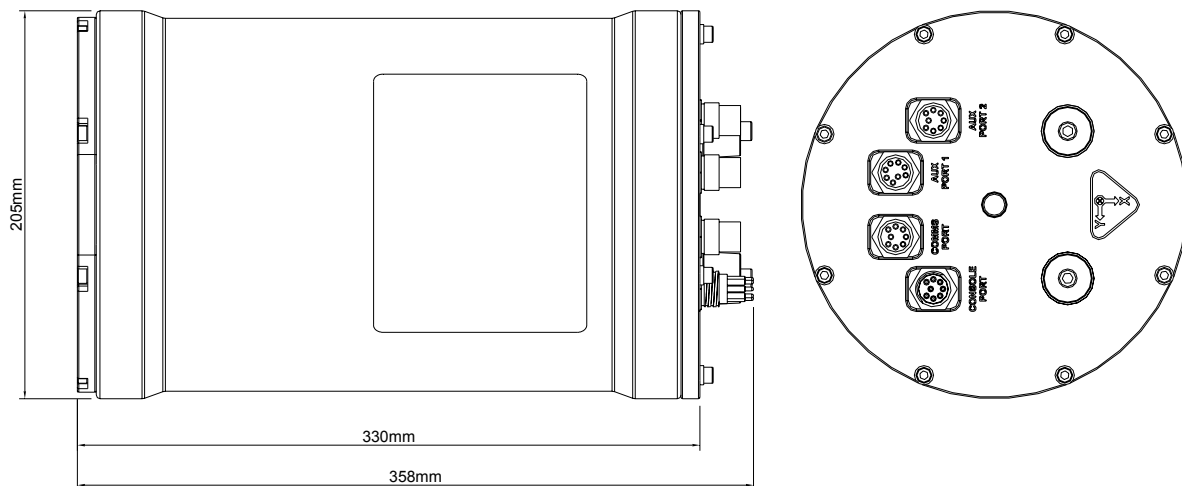
Key Features

- 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 >100,000 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
- Internal 4GB memory allows post processing of a 2 day mission
- Designed and approved to IMO Resolution A424(XI)
- Ethernet interface
- INS ready



Specifications

Lodestar- Attitude & Heading Reference System (Subsea)



| Feature | | Type 8084-000-11 | Type 8084-000-16 | Type 8084-000-21 |
|--------------|-------------------------|---------------------|--------------------|----------------------|
| Depth Rating | | 1,000 metres | 3,000 metres | 5,000 metres |
| Physical | Size | 205mm Dia. x 358 mm | 220mm Dia. x 425mm | 205mm Dia. x 409mm |
| | Weight in Air / Water | 13.9kg / 2.9kg | 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 |
| | | Settle Time | <5 minutes |
| | | Follow Up Speed | 500° / second |
| | | Resolution | 0.01° |
| | Roll & Pitch | Range | ±180° (No physical limit) |
| | | Accuracy | 0.01° |
| | | Resolution | 0.01° |
| | Heave | Range | ±99m |
| | | Accuracy (Real Time) | 5cm or 5% (Whichever the greater) |
| | | Bandwidth | User selectable |
| | | Resolution | 0.01m |
| Environmental | Operating Temperature | | -10°C to +55°C |
| | Shock Rating Operational | | 22g, 11ms half sine |
| | Power Requirement | | 18 – 50V DC, 15W nominal, 20W peak |
| | Back Up Battery Type / Life | | Li-Ion / 3 hours |
| | Data Storage | | 4GB internal memory |
| Digital Output | Number of Digital Ports/Protocol | | 4 Digital Ports / RS232 or RS485 |
| | Other Ports | | 1 × Ethernet |
| Optional INS | Upgrade Path | | Yes |
| | Navigation Error (Free Inertial) | | >1.5NM/hr CEP |
| | Maximum Acceleration | | 2.5g |