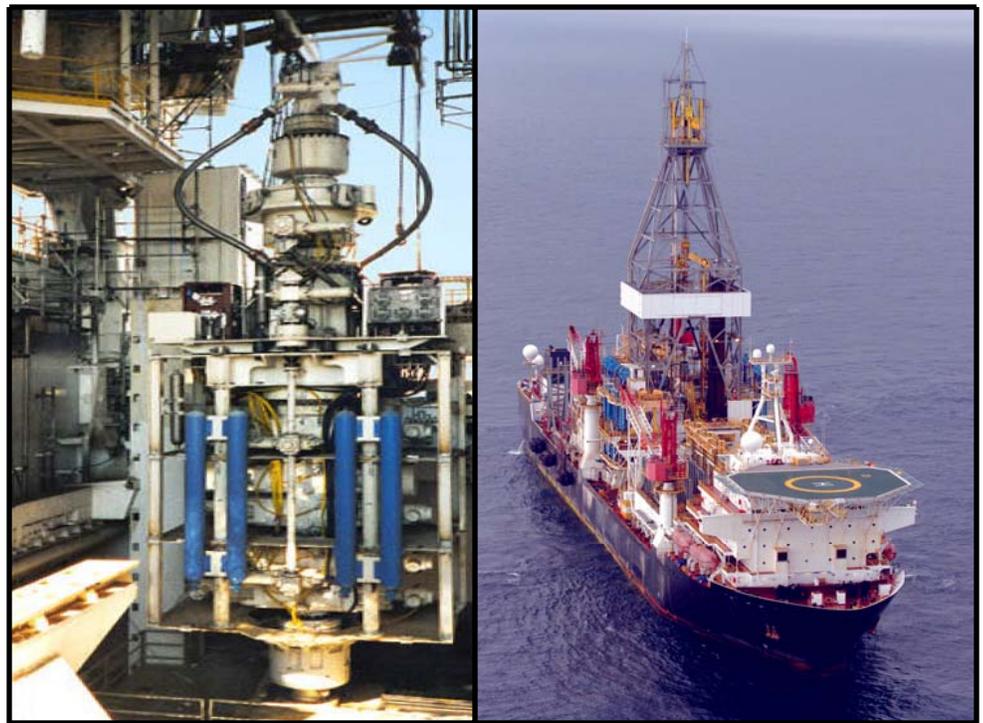




Solutions - Service - Support

**High Resolution - *Stack Heading*
and *Electrical Riser Angle* System**
SH-ERA



Zupt delivers operationally aware inertial technologies to improve the productivity associated with high cost operations for oil and gas exploration and field development. These capabilities are offered and supported worldwide.

www.zupt.com

High Resolution - Stack Heading and Electrical Riser Angle System

Many installed Electrical Riser Angle systems fail to deliver the level of resolution needed to allow precise positioning of the surface vessel with respect to the seafloor installed stack to eliminate wear. **This combined stack heading and ERA system is the first system to provide a cost effective solution based on state of the art inertial navigation sensors.** The **SH-ERA** system does not use magnetic sensors for heading or attitude and as such can provide very high resolution heading and attitude data deployment after deployment with no loss of accuracy.

The **SH-ERA** system can be retrofitted into existing BOP mux control systems, consumes little power and the data formats can be modified to mimic many existing systems. The subsea packaging has been designed to fit into a very small volume.

An explosion proof housed (EEX-d) option is available for a surface return angle sensor mounting below the drill floor.

Part Numbers: SH-ERA Options include connectors, mounting brackets and explosion proof housing

SH-ERA is a fully integrated system and includes:

- High-performance inertial sensors
- Simple user interface software
- I-O hardware with multiple output options
- Stack Heading, stack attitude, riser attitude output configurable up to 10Hz
- Data logging capability
- Audit trail for operator history logging

SH-ERA delivers both high resolution data as well as high update rate. SH-ERA can directly interface to the DP desk to provide reliable, high update rate differential data.

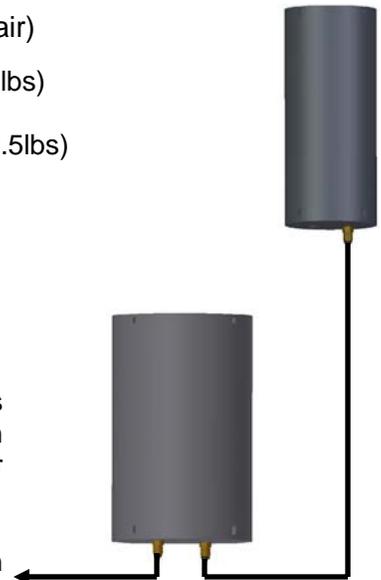
- Stack heading** accuracy +/- **0.4°** (Secant Lat)
- Stack attitude data +/- 0.03°
- Riser attitude data +/- 0.03°
- Differential** (flex joint) data +/- **0.05°**

Input options include an interface to the vessels gyro to automatically compensate for the difference between the vessel heading and the stack heading.

| | Diameter | Height | Weight (air) |
|-----------------|--|---------------|-----------------|
| Riser Unit | 120mm(4.75") | 245mm (9.75") | 6kg (13.2lbs) |
| Stack Unit | 180mm (7.0") | 245mm (9.75") | 7.5kg (16.5lbs) |
| Pressure rating | 4,000m (13,000fsw) | | |
| Power | 20W at 24Vdc. Stack unit powers riser unit | | |
| Communications | RS232/RS422/RS485 - current loop, | | |

Housings dimensions and weights shown above are for 4,000m rated stainless subsea housings. Both the stack and riser units are mounted vertically with connectors facing down. Connector options are Seacon Brantner PBOF or Subconn metal shell series.

Both the stack and riser systems contain state of the art inertial acceleration and rotational rate sensors—providing optimal angle and heading data.



www.zupt.com

Zupt, LLC
 10963 Cutten Rd, A102
 Houston, TX 77066
 Tel: +1 (832) 295 7280
 Email: sales@zupt.com



The information given herein is believed to be reliable. Zupt, LLC makes no warranties as to its accuracy and completeness. These specifications are subject to change without notice.

Version 07-01A June 2007