C-PINS

Subsea Precise Inertial Navigation System

C-PINS is a survey tool specifically designed to provide precise positioning and navigation for most offshore subsea marine construction operations.

C-PINS delivers the same precision as conventional underwater positioning systems while consuming much less spread time for deployment, calibration and data acquisition.

C-PINS has applications in:

- Jumper and Spoolpiece Metrologies
- Pipeline Out-of-Straightness Surveys
- Buoy Setting for Well Installation
- Structure Installations
- Pipeline and Umbilical Installation
- USBL Smoothing
- Sparse LBL
- Decommissioning

ZUPT

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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.

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C-PINS has applications in:

- Metrology - jumper, spoolpiece
- Field Layout - manifold, SSIV, PLEM installations
- Pipeline and Umbilical Installation
- Pipeline out-of-straightness surveys
- USBL Smoothing

In addition to developing a solid architecture during the design of C-PINS we have focused on specific limitations that we believe exist within other subsea aided inertial systems:

- Tightly coupled LBL observations allowing dynamic use of lines of position (LoPs) or very sparse LBL
- LBL time of validity (tov) through sampling of LBL Tx pings
- DVL is coupled at the beam level - more reliable solution
- USBL is used to aid the inertial not the other way around
- Navigation processing on the vehicle - significantly reducing issues due to slip ring outage and bandwidth demands
- IMU flexible - slect IMU based on error model requirements

CAPABILITIES:

C-PINS can be configured to integrate any or all of the following aiding sensors

Navigation grade Inertial Measurement Unit (IMU)
Doppler Velocity Log (DVL) beam data
Long Baseline lines of position (LoP)
Precise pressure (depth) transducer
Ultra Short Baseline acoustic positioning (USBL)
GPS range and time data (1PPS to UTC)
Speed of sound - real time sound velocity profile (SVP)
Seawater Temperature (PRT)

OPTIONS:

Various IMUs depending on overall error budget
Various water depth packaging
Configurations for towfish, AUV as well as ROV

SPECIFICATIONS:

Two subsea housing configurations for high end marine construction tasks

4,000m rated system

26cm dia by 46.5cm long
Weight in air 45kg
Weight in water 20 kg

1,500m rated system

25cm dia by 34cm long
Weight in air 52kg
Weight in water 38kg

Accurate and precise positioning data

delivered in a fraction of the time.

Zupt, LLC
6818 N Sam Houston Pkwy W
Houston, TX 77064

Tel: +1 832 295 7280
Email: sales@zupt.com

www.zupt.com