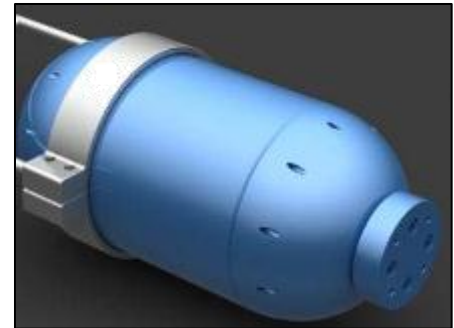




IPOZ GIPSEA® Metrology system is a depth rated survey instrument for the accurate measurement of positions, distances, depths and full orientation (heading, pitch and roll) of any underwater structure, in particular future pipeline jumper locations (“metrology”) even with no “acoustic line of sight” between receptacles...

The IPOZ GIPSEA® Metrology™ instrument has the same accuracy as the traditional methods using acoustic networks (tripods) plus gyroscopes plus depth sensors (etc...), but is a single tool held by the ROV arm with an umbilical (like a gyro) and can complete the whole survey in a few hours (one single dive).

No More Network. To complete traditional acoustic metrologies, a number of acoustic Compatts must be lowered to the seabed, some of them mounted in tripods. An ROV must then take them one by one and locate them precisely in places where they will have an “acoustic line of sight” between them and with the points to survey, where other beacons are also placed. If there is no interference and multipath, the acoustic network then exchanges pings for hours to compute distances between each point, and an experienced acoustic surveyor must compensate carefully the network...



All this takes days, and provides only one straight line distance.



No More Gyro loop. In traditional metrology, the ROV must dive again to do gyro surveys between the various points, to obtain the orientation of the future flanges of the jumper.

No More Depth loop. The ROV must dive again to do depth measurements between all points. Depth will have to be corrected for underwater sound velocity, tides, heave etc...

No More Massive hardware pool. Simply lowering all acoustic beacons to depth, then moving them to the right location and then retrieving them at the end of the project requires days of ROV and vessel time.

Accuracy and Productivity. In contrast, the IPOZ GIPSEA® Inertial Metrology system will complete a full 3D metrology measurement (all lengths, depths and orientations) in a few hours. The results are available within 1 hour of the end of the survey, often before the ROV is back on deck.





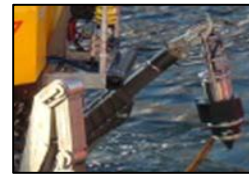
ACOUSTIC NETWORK

STEPS:

- Lower all tripods with crane (1/2 day)
- Lower other beacons with work basket (1/2 day)
- ROV dives to move tripods to locations (1/2 day)
- ROV dives to place beacons in receptacles (1/2 day)
- Network measurements (1/2 day)
- ROV dives with gyro for orientations (1/2 day)
- ROV dives with depth sensor for all depths (1/2 day)
- ROV dives to recup beacons to basket (1/2 day)
- ROV dives to recup tripods to crane (1/2 day)

TOTAL DURATION:

4.5 days



IPOZ GIPSEA®

STEPS:

- ROV dives with GIPSEA®
- Goes to one receptacle and aligns (1h)
- Goes from one receptacle to the other (0.3h)
- Repeats this loop 8 to 10 times (few hours)

TOTAL DURATION:

A few hours

SPECIFICATIONS:



<p>An inertial system is an autonomous instrument composed of 3 accelerometers and 3 gyroscopes, capable of computing three-dimensional positions and orientations without external information.</p>	<p>Real-Time Accuracy: 3D position: 0.1m per 100m between receptacles, (1/1000) Heading: 0.05 degree Pitch and Roll: 0.02 degree</p>
<p>IPOZ GIPSEA® Inertial Metrology™ system is designed for ROV operations, including a reasonable amount of shocks and vibrations, and is rated to 1000m and 3000m (two housings). It requires a 24v 3 amps power supply.</p>	<p>Post-Processed Accuracy: Horizontal Position: < 0.05m average for metrology Depth: < 0.20m average without depth sensor Depth: < 0.05m average with depth sensor</p>
<p>Comms: Linked to the ROV via an umbilical, the GIPSEA requires an RS232 or RS422 link at 38400-115200 bd. It is controlled and monitored by a simple Windows XP or later computer. Can stand short comms interruptions. Needs comms only for align and update command, and record fixes.</p>	<p>IMU SPECS: Vibration: Mil-Prf-71185 Shock: Mil-Prf-71185 Power Mil-Std-1275A, Power consumption: <25W Operation temp: -54C +71C MTBF >20,000h</p>
<p>Power: 10-30v (battery compensates for short outages) 1.5 amps at 24V when battery is charged (3 to 4.5 amps to charge and survey simultaneously) Battery lasts for 3h of operations, in case of power outage (a 6h battery is optional).</p>	<p>Warning: Shocks, falls and rough handling can 1) affect the quality of the 3D position and 2) create failures of the sensors used in the INS. IPOZ SYSTEMS LLC and its personnel are in no circumstance legally liable for consequences of the use and misuse of their equipment.</p>