

# iPST-FJI

## Inertial Measuring System for Surveying Pipelines (Pipeline Surveying Tool)

For maintenance purposes pipelines have to be checked on a regular basis with the help of inspection tools searching for damage such as deformation, corrosion or leaks. During this inspection it is especially important to determine the exact location of the inspection tools in the pipeline, as this can significantly reduce the scope of necessary repairs. Imprecise location of the damage can make it necessary to clear a large area of the pipeline, resulting in much greater repair costs.

With the help of Inertial Navigation Technology the position of a



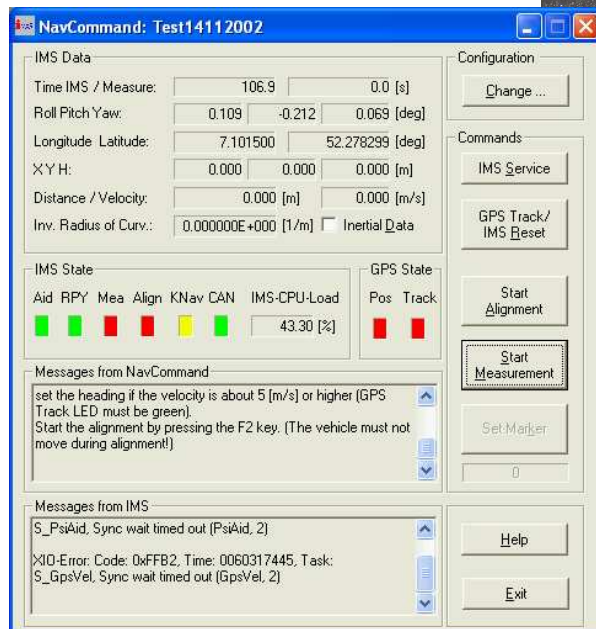
iPST-RQH-003 with ring laser gyros for 10" pipeline (built for an wellknown German pipeline inspection company)



pipeline inspection tool in a pipeline can be exactly determined. To achieve this, the inspection tool is coupled with a inertial Pipeline Surveying Tool (iPST) consisting of three gyroscopes, three accelerometers, odometers and an electronic device for signal processing. The gyroscopes are used to determine attitude and heading of the iPST. The accelerometers and the odometers are used to determine the translational motions. All data are processed using a filter which also permits additionally available external aiding information for data processing.

iPST-FJI contains high precision fiber optical gyroscopes (0.003...0.05 %/h). Depending on the environmental requirements, the available diameter and the length can be designed customer specific. The accelerometers used have < 1 mg bias with measuring ranges up to 20 g < 50 µg resolution.

Because of their modular construction the systems can be adapted to the specific requirements of each customer.



Gyro assembly and electronics of the 10" iPST with high precision time reference and data store capability designed for 100 hr continuously surveying operation. Three odometer inputs are sampled as well as additional marker and aiding information.

#### **Technical Data (brief):**

iPST-FJI-0025 with three fiber optic gyroscopes (0.05 %/h,  $0.0025\%/\sqrt{h}$ , 30 ppm) and three servo accelerometers (resolution <50 µg). Size: Ø 170 mm, L≈750 mm (other housing optionally available).

Further features:

- connection for up to 3 odometers,
- internal data storage for up to 4 GByte available.
- accuracy: < 1 m over 2..5 km aiding.
- only European Export License required (data of iPST-FJI-001 on request)

Should you have any detailed questions concerning your application or requirements in inertial reference systems for pipeline surveying or borehole navigation, please do not hesitate to contact us.

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