

IPOZ GIPSI® Inertial Backpack is a land survey instrument based on Inertial Navigation technology. It is the perfect positioning tool for all applications, and in particular where GPS is not optimal: Urban environment, forest, jungle, underground, caves, tunnel, mines etc...

The IPOZ GIPSI® Inertial Backpack™ has the same accuracy after post-processing as RTK GPS in average projects, but is more environmentally friendly than any other instrument.

This survey instrument is lightweight and easy to use, a GPS-trained operator will already have all the background knowledge necessary for its operation: Range and Bearing to Target, load Control Waypoints and Precomputed positions, Record Fix, Position Update, optional Map backgrounds etc...



A series of indicators and warning messages both visible and audible make it easy to operate and train new users. The only two procedures different from GPS survey are Alignment (a form of calibration) and zero-velocity update: the simple fact of stopping for a few seconds every minute or so, to improve the navigation accuracy.



Protection of the Environment. Because the IPOZ GIPSI Inertial Backpack™ is an autonomous instrument, it doesn't require line-of-sight or radio signals to operate. In forested environments this means that the surveyor does not have to cut any vegetation to survey even the straightest lines; the operator simply walks around trees and bushes, and places bio-degradable survey markers exactly in the position intended (preplot), but without environmental impact. A month later there will be no indication that a survey took place and nature will have regained its rights.




In contrast, other survey methods such as theodolite surveys require heavy cutting of vegetation in extremely straight lines that remain visible for years, and sometimes, start a process of erosion that is dramatic to the local area habitats and inhabitants.

Accuracy and Productivity The results of comparison surveys show that the accuracy of the 3D positions recorded with IPOZ inertial backpacks™ is similar to the best RTK GPS surveys on average, and therefore more than adequate for Oil and Gas exploration (seismic), Forestry and many applications where a Land Surveyor is needed. The difference with theodolite surveys is its remarkable velocity: IPOZ Inertial Backpacks™ can do the job at 4 to 5 times the productivity of conventional survey methods with half the team (crews of 2 or 3 men instead of 5 to 6 in theodolite crews, including brush and tree cutters).





IPOZ GIPSI® Inertial Backpack™ Comparison

 <p align="center">GPS</p>	 <p align="center">Theodolite</p>	 <p align="center"><u>IPOz Inertial Backpack</u></p>
<p><u>Advantages:</u></p> <p>Ease of use (portable) Very Productive Accurate (RTK GPS) Easy to learn</p> <p><u>Draw backs:</u></p> <p>Cables and Antennas Needs to receive GPS signal and radio correction signal. Transmitters/Repeaters. Cutting needed Licenses for radios.</p> <p align="center"><u>Doesn't work in Jungle and Forests</u></p>	<p><u>Advantages:</u></p> <p>Very Accurate</p> <p><u>Draw backs:</u></p> <p>Needs Trained Surveyor</p> <p>Requires steady ground (no swamps)</p> <p>Requires Line of sight:</p> <p>Maximum brush and tree cutting</p> <p align="center"><u>Very Slow Production</u></p>	<p><u>Advantages:</u></p> <p>Ease of use (portable) Very Productive Accurate Easy to learn Works everywhere No Need for cutting</p> <p><u>Draw backs:</u></p> <p>Weight, Initial Investment</p> <p align="center"><u>The Most Versatile System</u></p>

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> <ul style="list-style-type: none"> - Rain proof - Operating Temperatures: -20c to +50C - Weight < 30 lbs 	<p>Real-Time Accuracy: 3D position: 1m per km between Control Points, (1/1000) Heading: 0.05 degree Pitch and Roll: 0.02 degree</p> <p>Post-Processed Accuracy: Horizontal Position: 0.40m average Vertical Position: 0.40m average Recommended distance between Updates to Control Positions: 1.6 km or 1 mile (linear).</p>
<p>Inputs 3D Positions can be input for Alignment or to Update position via binary files. Navigation is computed internally at high rate, using motions sensed by the INS itself. All Inputs controlled by IPOZ survey software. Input files can be created by e.g. GPSeismic™ and other proprietary software.</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>Outputs 3D positions are recorded in a Handheld Computer. Output files can then be processed on a PC by IPOZ or off-the-shelf survey software, to create maps and Industry Standard formats (ASCII, SEGP1, DXF, DWG, SHAPE...).</p>	<p align="center">Warning:</p> <p>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 of their equipment.</p>