VISTA OPENGEO™TRACK GEOMETRY SYSTEM

COMPARATIVE ADVANTAGES

Vista Instrumentation LLC
6025 Marthas Glen Road
Columbia, South Carolina 29209
USA

Phone: +1 (803) 429-8203
Email: info@vistainstrumentation.com
Web: www.vistainstrumentation.com

Comparative Advantages
Using the
Vista OpenGeo™ System

Vista Instrumentation LLC has designed and developed the next generation of Rail Track Geometry Measurement equipment which brings better performance, lower cost, simplicity and reliability to the industry.

Based on highly integrated hardware which enables extremely fast rail image processing using special firmware programmed into a gate array chip (FPGA) this system enables non-contact measurement of railroad track to levels not possible previously.

Despite performance that surpasses legacy systems, The OpenGeo™ system also achieves better (low) power consumption, smaller size, lower cost, better reliability and extreme flexibility in application not previously possible.

The table below summarizes some of the benefits of using the Vista OpenGeo™ System and compares design features and performance against legacy systems available in this industry.

OpenGeo System	Legacy Systems	The OpenGeo Advantage
1. Open Source design	Closed design, hardware and software is proprietary	Complete engineering design details are available to the customer
2. Low power usage (50W total)	Many legacy systems use more than ten times as much power	Lowest power consumption in the industry means less heat generation and better reliability
3. Dual tachometer interfaces	Most systems provide one tachometer input	Dual tachometers provide redundancy in case of failure and potentially better accuracy depending on instrument location
4. Embedded software on solid state storage	Typically mechanical disk drives are used	Solid state storage provides much better reliability and lower power consumption
5. Measurement data retained using solid state storage	Typically mechanical disk drives are used	Solid state storage provides much better reliability and lower power consumption
6. Extensive self-diagnostics	Self-diagnostics vary from none to some	The extensive self-diagnostic facility provides the ability to monitor impending failures and to fix before any data loss occurs
7. Factory calibrated modular assemblies	Varies from none to some	Factory calibration means simple part replacement in the field and sealed assemblies for better reliability

OpenGeo System	Legacy Systems	The OpenGeo Advantage
8. Unattended operation possible	Most systems are only designed for operation on special vehicles	The OpenGeo system is flexible and may be used unattended fitted to locomotives, passenger vehicles or hi-rail vehicles
9. WiFi (802.11B/G) built-in	Most systems do not provide integrated WiFi connectivity	Wireless connectivity allows remote download of data and system diagnostics
10. GPS location built-in	Varies from some to none	All geometry data is stamped with GPS location and accurate GPS time information
11. High speed operation possible (250mm samples at 350km/h)	Some systems provide high speed operation with expensive highly complex hardware	OpenGeo supports high speed operation with simple selection of high-speed cameras very economically. Otherwise the system remains the same
12. Compact, lightweight design	High performance systems are complex, heavy and large	Lightweight yet robust design promotes high reliability. Compactness allows great flexibility in mounting system on various vehicles
13. Rugged integrated electronics for all data processing	Legacy systems rely on standard computer equipment	The custom design of the OpenGeo circuit board to perform all measurement functions greatly enhances system reliability
14. Integrated battery backup	Legacy systems use external power backup if at all	Battery backup allows operation through power interruptions and prevents data loss

OpenGeo System	Legacy Systems	The OpenGeo Advantage
15. Modular components with built-in calibration and electronic ID.	Most systems use custom assemblies difficult to service in the field.	Modularity makes field service simple, spare parts management easy and automatic electronic ID ensures components work properly together.
16. Integrated laser safety	Laser safety must be addresses with external design of interlocks and other requirements	The design of the OpenGeo system incorporates all laser safety features required for operation.
17. Remote software updates	Software and firmware updates typically require personnel to visit the equipment	Operating software/firmware may be updated remotely via email or the internet
18. Single laser per rail	Varies, some systems require multiple lasers per rail	A single laser results in better reliability due to lower component count and fewer windows to get dirty
19. One set of inertial instruments gives better reliability with lower component count.	Some systems use accelerometers for each rail in various locations	OpenGeo uses a single inertial instrument (accelerometer and optical gyro) pack. Simple, compact and low parts count.
20. Can operate with one camera per rail.	Some systems require two operating cameras per rail	OpenGeo uses two cameras per rail for enhanced reliability but will operate with one if failure occurs
21. One rugged circuit board performs all measurement functions.	Typically many electronic circuit boards and computers are used	With all functionality on one circuit board and most processing done in hardware (FPGA) the electronics are simpler, more rugged and much more reliable

OpenGeo System	Legacy Systems	The OpenGeo Advantage
22. Low cost	Complex systems are expensive to purchase and expensive to maintain	The OpenGeo system provides an economical solution with much lower maintenance costs, better performance and higher reliability.

