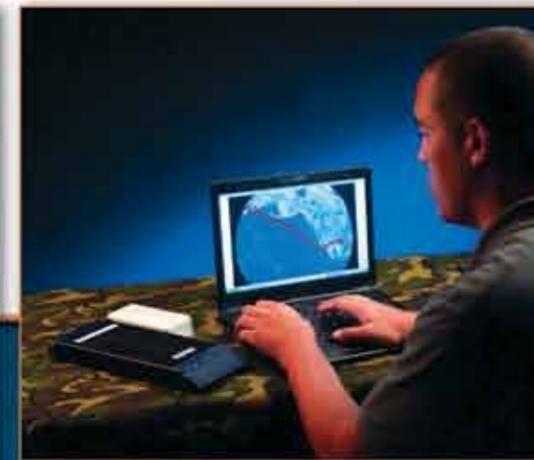


# GLOBAL ASSET TRACKING, MONITORING AND SUPPLY CHAIN MANAGEMENT



# GLOBAL SENTINEL: CONTINUOUS ASSET TRACKING & MONITORING ON LAND OR AT SEA

To meet the challenges of increasingly complex global supply chains, defense and commercial agencies require smarter technologies to effectively track and manage their cargos wherever they move – on land or at sea. Cubic Global Tracking Solutions (CGTS) offers an innovative, affordable solution to provide immediate worldwide reporting on the location, condition and security status of valuable and high-risk assets.

With the Global Sentinel® system, customers can pinpoint the exact location and condition of their assets in real-time via satellite, cellular or local wireless networks. The system provides continuous, real-time monitoring, tracking and immediate security reporting from any point on earth. Global Sentinel is infrastructure-free and comes in multiple configurations for any type of asset, either stationary or in transit, including trucks, trailers, containers or pallets.

Unlike other systems, Global Sentinel leverages multiple communications methods, including global satellite communication networks, regional cellular networks, active Radio Frequency Identification (RFID) and secure Web-based applications. This not only ensures low-latency reporting from any point on earth, but also provides least-cost data routing to minimize communications expense.

## KEY FEATURES

- Ubiquitous global communications via satellite, cellular, RFID, and Bluetooth and GPS
- Extensive sensor capability (internal, tethered or wireless)
- Complex event monitoring and analysis
- Secure web-accessible data available 24-7-365 to your data centers
- Worldwide remote programmability
- Long-lasting power supply with 2+ year life from off-the-shelf batteries
- Rugged IP-66 housing for durability under the harshest conditions
- Adaptable mounting mechanism and compact size for easy installation on reefers, non-standard containers, vehicles, etc.

The technology ensures a Continuous Chain of Custody (C-3) Shipping System™ for improved efficiency, reduced costs and streamlined logistics management. With Cubic GTS services, customers will have the information needed to achieve true asset management optimization with immediate notification of significant events, plus the ability to change rules/requirements when the asset is in transit or at a remote location.

Global Sentinel has been rigorously field-tested by the U.S. Department of Homeland Security and numerous government and commercial entities. It is currently in use by the U.S. Department of Defense for tracking and monitoring shipments in the Middle East and Southwest Asia.

Whatever, Wherever, Whenever, You'll Know™

## HOW IT WORKS

The Global Sentinel Unit (GSU) is a “smart technology” that has the business rules and logic on the device, which results in real-time information, lower communication costs and greater battery life. The modular design of the system allows for the integration of sensors within the unit, wired to the unit or connected wirelessly with the Remote Sensor Unit (RSU). These sensors record data such as temperature, humidity, shock, acceleration and entry/exit information. Cubic GTS has also incorporated customer-specific and unique sensors (i.e., CO2, radiation) when requested.

Global Sentinel communicates seamlessly worldwide with the Cubic GTS Device Management Center (DMC) through multiple wireless technologies, providing immediate secure access via the Internet to the data generated from the asset being tracked, monitored or managed. Through the DMC, customers and appropriate agencies are notified within minutes if a container or asset experiences an abnormal event, including an unauthorized entry, mishandling, environmental extreme, route change or schedule delay. The DMC can also link to customers’ data centers through other options, including secure XML or API.

All business rules are configured by the user and can be changed at any point in time without having to touch the device. Globally deployed devices can have their business rules reconfigured to reset sensor thresholds, change alert notifications and alter reporting intervals by location.

## CORE TECHNOLOGIES

### Global Sentinel Unit

The GSU is a flexible device that provides worldwide “infrastructure-free” monitoring, tracking and security. Two-way, redundant wireless communications are provided by Iridium, GSM/GPRS cellular and multiple wireless protocols. This communication allows continuous global positioning (GPS), status reporting, event alerting and remote configuration.

### Remote Sensor Unit

The RSU is a smaller tag that can be configured with temperature, humidity, shock, acceleration, light and door state sensors. When coupled with the GSU, the RSU provides a wireless sensing capability to a remote sensing location where a wired interface is impractical.

### MAT (Mesh Asset Tag)

The same RSU can also operate independently of a GSU as a MAT, which is similar to an active RFID device but without the limitations of active RFID (no encryption/security, high cost, fixed infrastructure requirement, short battery life etc.). The MAT employs the same sensors as the RSU but has the added capability of GPS. In this configuration, Cubic GTS’ 802.15.4 protocol provides superior ad hoc network formation (tags that talk to each other to pass information), security, power management and efficiency. The MATs communicate their data with either a GSU or a fixed gateway.

### Device Management Center

The DMC provides secure data collection, analysis, visualization and dissemination to authorized shippers, logistics management firms, customs and other appropriate agencies. The DMC maintains regular two-way communication with each deployed GSU and fixed gateway for report receipt and remote configuration management. It allows continuous asset condition monitoring via secure web access, SMS, email and encrypted XML data transfer.

