



GLOBAL IMAGING

Remote Sensing—from the ground up

STAR TRACKER

**Precision Worldwide
Tracking via Satellite**



STAR TRACKER

PRECISION WORLDWIDE TRACKING VIA SATELLITE

The StarTracker system lets you track remote objects for periods of time up to six months using miniature transponder beacons, which transmit the location of the beacon on a regular basis.

Optional StarTracker software lets you to receive real-time satellite imagery from NOAA and METOP spacecraft for environmental, meteorological and oceanographic applications.



Complete Integration in a Tactical Earth Station

The StarTracker system consists of miniature transponder beacons and a tracking Earth Station for receiving the relayed beacon transmissions. The entire Station, including cables, fits inside two Pelican suitcases:

- **80 cm precision machined aluminum reflector**
- **Integral LNA/ Downconverter Feed**
- **L Band Receiver / Demodulator**
- **Bit and Frame Synchronizer**
- **Laptop Computer**

The 80-cm reflector consists of 12 identical petals which are assembled by hand. The reflector breaks down for compact shipment and can be assembled in minutes by one person with no tools.



Powerful Automatic Operation

The StarTracker system performs the following functions automatically.

- Precision tracking of satellite overflights
- Acquisition of the satellite data stream
- Extraction of the beacon transmissions
- Computation of the beacon location and track
- Graphical display of beacon location and track on a Laptop PC

GPS Position Accuracy

By precisely measuring the time of received signals from several GPS satellites, a GPS receiver determines its position with an accuracy of approximately 30 meters. Using StarTracker beacons, GPS information is processed and formatted by an onboard microprocessor and then relayed to an orbiting satellite for re-transmission to the user.

As a backup, StarTracker software computes beacon position from the Doppler shift of its transmitter. Accuracy of the backup measurement is approximately 1 kilometer.

Geospatial Data Analysis

Beacon transmissions are kept in a database which allows the user to assign tags to beacons and messages and to query the database by transmitter id, date/time, position, and tag for tabular and graphical display. Software includes ESRI's ArcMap program, which allows the user to display beacon positions on pre-defined project map templates. Every time the transmitter message database is updated, StarTracker software updates the ArcMap data frame to reflect the modifications to the database.

Each beacon is symbolized as a layer within ArcMap by a unique color and is identified by its decimal ID. Beacons can be grouped using standard ArcMap layer groups. Each beacon is assigned a unique color. A small black outlined diamond symbolizes the older positions and a slightly larger black outlined box symbolizes the most current location.

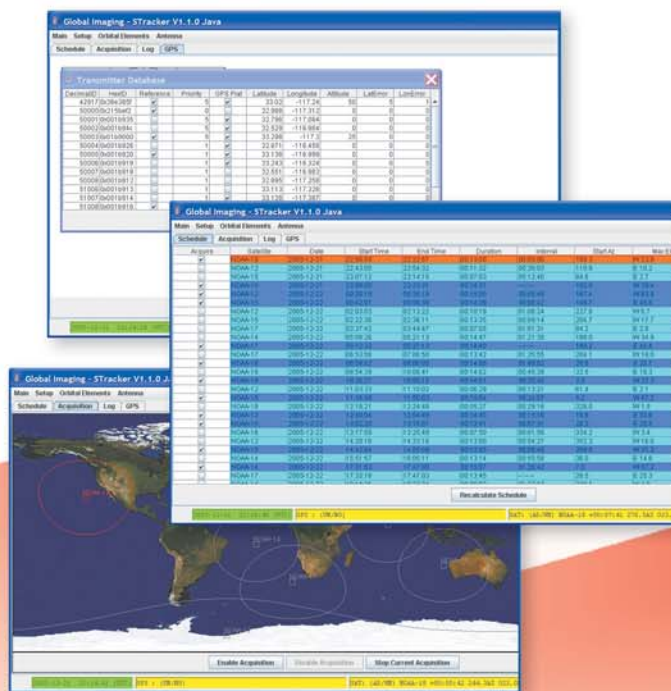
A date/time stamp is shown next to the symbol of the latest position. As new beacons are acquired and processed they are automatically added to the project and are symbolized as above. The user can turn the display of beacons on or off using the check box for each layer.

ArcMap supports the modification of color and symbols. Changes to the symbology and layer display are stored in the project and do not affect the underlying database.

A StarTracker menu allows the user to perform easily the following tasks:

1. Filter displayed beacon position by date and time.
2. Display the current position or all positions.
3. Display an error ellipse around each point showing position uncertainty.
4. Display only GPS enabled beacons and filter the display of beacons.

Beacon	
Feature	Benefit
GPS Receiver	3m earth location accuracy
Timed Transmission	Longer battery life
Rugged	Long-term survivability
STAR Tracker Earth Station	
No tools required	Easy assembly without tools by a single person
Surface Transportable by HMMWV	Rapid deployment
Air Transportable as commercial luggage	
Standard 110/220 VAC Power	Worldwide operability





STAR TRACKER

Technical Specifications:

External Equipment Operational Environment

- -40 to +80 degrees Centigrade
- 0% to 100% humidity
- 50 KM/hr windspeed with 80 km/hr gusts
- Ice and snow to 1 cm
- Sand and dust (Method 510.3 per MIL-STD-810E)
- Salt and fog (Method 509.3 per MIL-STD-810E)
- Terrain slope to 15 degrees

Sheltered equipment Operational Environment

- 20,000 feet above sea level
- 0 to +50 degrees Centigrade
- 0% to 100% humidity

Computer

- Ruggedized Laptop, Windows XP or Linux Operating System
- 2 Ghz Processor
- 1 GB RAM
- 40 GB Disk Drive
- Ethernet
- WiFi
- Blue Tooth
- 15" 1024x1280 Display
- GPS Receiver for accurate clock and position

Tracking Antenna

- 80 cm diameter precision machined reflector
- 25 DegK LNA
- Integrated LNA/Feed and Downconverter
- Leveling legs

Transport Cases

- Entire system fits in two Pelican 1620 cases. Cases are equipped with 5 cm hard rubber transport wheels. (63 x 49.2 x 35.2 cm) with a weight of 69 and 81 lbs. each.

Optional Software

- Extraction of the AVHRR sectors from NOAA and METOP transmissions
- Automatic generation of AVHRR products including Cloud screened surface albedo
Land and ocean surface temperatures
Digital vegetation indices
- Product visualization using Global Imaging's FOCUS 9000 software



Ground receiving systems for GOES NEXT, MTSAT, Meteosat, MSG, FY-2, NOAA, DMSP, TOMS, FY-1, EOS/MODIS, and SeaWiFS available from Global Imaging, Inc.



Further Information

Our team of expert consultants will gladly review your mission requirements and present you with a comprehensive proposal for success. For more information on Global Imaging's complete line of systems and services, contact:



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