LeoTRAK

Alert / Tracking / Monitoring

The Beam LeoTRAK range of terminals use the latest most advanced techno logy in providing global alert, tracking and monitoring services.

Multi Mode Capability

LeoTRAK is available in 4 main variants:
RST450 – GPS Only
RST460 – GPS / GSM
RST470 – GPS / Iridium SBD
RST480 – GPS / GSM / Iridium SBD

Market Applications

LeoTRAK provides a highly featured solution to support a wide range of vertical market including;

- Transport
- Maritime
- Agriculture
- Oil / gas
- Utilities
- Emergency services
- Government
- Aeronautical

The applications can be as varied as

- Monitoring
- Fleet Management
- Tracking
- Remote Control
- Alert Reporting
- Alarm Management
- 'Man Down' Alerts
- Data Communications

Iridium Satellite System

Iridium is the only provider of truly global satellite voice and data solutions with complete coverage of the earth. Iridium delivers essential communications services to and from remote areas where no other form of communication is available.

BEAM SATELLITE ...KNOW HOW

Key Features & Benefits

- Global Coverage
- Multi Mode Devices
  - o Quad Band GSM / GPS
  - o Iridium Satellite / GPS
  - o Quad Band GSM / Iridium / GPS
- Priority GSM / Satellite modes
- Sensitive GPS engine In-built
- SD storage upgradeable to 4GB
- Messaging Capable
- Battery Back-up "Ready"
  - o Up to 90 days sleep mode
  - o Up to 7 days standby
  - o Up to 6 hours continuous transmit
- 9 – 32VDC input
- Intelligent power saving modes
- Support multiple alert buttons
- Digital IO
- Analogue input
- Multiple alert notifications
- Support simultaneous tracking
- Passcode protected
- Simple Installation / configuration
- Local & remote configuration
- Remote diagnostics & testing
- Remote Control

LeoTRAK Model Summary

LeoTRAK	GPS	GSM	Iridium
RST450	✓	x	x
RST460	✓	✓	x
RST470	✓	x	✓
RST480	✓	✓	✓

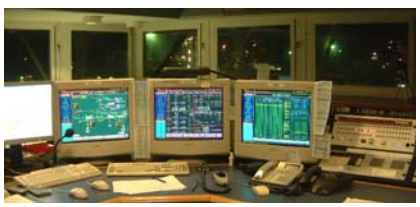
Interoperability

Except for the RST450 all of the above terminals are fully operational as standalone terminals as they have an inbuilt communications device.

The RST450 can be used with any of the wide range of Beam Iridium based communication terminals as well as the Iridium handheld 9505A telephone.

TRACKING / MONITORING

Tracking of vehicles, trains, busses, vessels, aircrafts, containers, people and any other fixed or mobile assets can be simply deployed using one of the LeoTRAK terminals.



LeoTRAK terminals provides an intelligent tracking interface that enables the configuration of individual reporting fields such as lat/long/speed/direction/height as well as the status of alarms or other digital /or analog inputs as configured on the terminal.

Tracking Data

The sending of position and status messages for any asset, vehicle or personnel can be simply and easily reported using one of the various methods available on the selected terminal.

For tracking applications the intelligent LeoTRAK allows the unit to be configured so that position reports can be sent upon various activities taking place.

Tracking / Monitoring Features

- Global coverage
- Terrestrial & Satellite options
- Tracking messages sent via:
  - GPRS (GSM Models)
  - SMS (GSM Models)
  - Short Burst Data (Iridium models)
- Store up to 4GB of message data
- Interface directly to LeoTRAK-online
  - Graphical Information system
- Tracking messages generated by
  - Preset periodic interval
  - Event driven
  - Digital input
  - Alert button pressed
  - Remotely polled
  - Movement / Simple geo-fencing
  - System activity

ALERTS / ALARMS

The LeoTRAK is designed to support a standalone alert / alarm management system or it can be used in conjunction with a tracking application. This makes it possible to track any asset or personnel on a regular basis whilst having the peace of mind of an alert system operating in the background at all times.

Alarm / Alert Inputs

The LeoTRAK interface can handle multiple alarm activation points which can be physical buttons or other digital /analog inputs. The use of 3rd party equipment such as 'man down' devices can easily be configured to the LeoTRAK terminals.

Alert Notification

When an alarm is raised this will automatically generate the delivery of an alert notification to the predetermined destination. This delivery destination can be to another Iridium service, another mobile service (Selected Service Providers) or to any email address as specified.

Alert/Alarms Features

- Global coverage
- Terrestrial & Satellite options
- Alert messages sent via:
  - GPRS (GSM Models)
  - SMS (GSM Models)
  - Short Burst Data (Iridium models)
- Interface directly to LeoTRAK-online
  - Graphical Information system
- Alert Security
  - Covert alert notification
  - No physical signs of alert raised
  - Notification to multiple parties
  - Continuous alerting until reset
  - Passcode protected
  - Alert priority over other comm.'s

LeoTRAK - online

The LeoTRAK Graphical location Information System provides for a low cost web based interface to be able to track and or monitor your fleet, vehicles, assets or personnel anywhere on earth.

Street Level Mapping

Beam has partnered with Multimap, one of the world's leading providers of online mapping and location-based services.

LeoTRAK-online will also provide the ability to interface to Google Earth as a value added feature of the system in the future.

LeoTRAK – online Features

- Global coverage
- Direct interface to LeoTRAK terminals
- Alert / Alarm identification
  - Flashing Duress
  - Pinpoint geo-location
  - Street level reference
- Fleet Management
  - View multiple assets
  - Create & manage groups
  - User and supervisor access
- Geo-fencing
  - Set boundaries on-line
  - Inclusion / exclusion boundaries
- Position reporting
  - Last 15 track point logged
  - Up to 1 year stored for reporting
  - Alerts displayed until cleared

SuperSense GPS

The SuperSense Global Positioning System module inside every LeoTRAK combines high sensitivity, with exceptionally low power consumption. Its -158 dBm tracking sensitivity extends positioning coverage into places where GPS was not possible before and enables solutions using small or covert antennas.

GSM / GPRS

RST460 & RST480 ONLY

The LeoTRAK hosts the Siemens MC75 quad band GSM module, supporting;

- 850/900/1800/1900 MHz
- EDGE (E-GPRS) multi-slot class 10

Using the USB port of the LeoTRAK terminal will provide access to use the GSM module for accessing GPRS data.

GSM – Hands-free Voice Calls

RST460 & RST480 ONLY

In conjunction with the release of the Beam RST045 Peripheral Control Panel for the LeoTRAK it will be possible to support a GSM hands-free voice call using on the GSM compatible LeoTRAK terminals. (Available Mid 2007)

Iridium SBD

RST470 & RST480 Only

Through the in-built Iridium 9601 Short Burst Data module makes it possible to send and receive data messages between the LeoTRAK terminal across the web to specific IP addresses or email addresses.

Short Burst Data is a truly packet based data service that allows small packets of data to be transmitted and received in a very timely manner to or from the device. Iridium Short Burst Data is charged per byte, no time charges apply.

Least Cost Communications

Using the intelligence inbuilt in the LeoTRAK RST480 terminal allows you to determine the priority for communications to be through GSM or Satellite communications.

Using the SD card storage also allows for position and alarm information to be downloaded locally if real-time communications are not required for some messages.

Control Panel Applications - Future

The LeoTRAK can support the use of a specific peripheral control handset capable of supporting messaging, alert and reporting functionality.

When the control Panel is used with the RST460 & RST480 LeoTRAK units the peripheral Control Panel will enable hands-free voice call functionality over the GSM module.

The Control Panel, RST045, is available as an accessory for the LeoTRAK terminals. (Available Mid 2007)

Intelligent Configuration

The LeoTRAKs' on board microprocessor allows intelligent configuration of the terminal, making it possible to configure the following;

- I/O
  - Alarm loops
  - Triggered inputs / outputs
  - Man Down device input
  - Analogue Input
  - Ignition sense
- Power Management
  - Sleep modes
  - Triggered on / off
  - Battery status
  - Ignition sense
- Alarm Events
  - Alarm equations
  - Event driven on / off etc
  - Reporting intervals
- Tracking
  - Event driven
  - Preset intervals
  - Movement detection
- Communication Methods
  - GSM / GPRS / SMS
  - Iridium SBD
- Delivery destinations
  - Emails
  - SMS
  - SBD

Events / Actions

LeoTRAK has been designed to enable customised programming of the alert, tracking and monitoring capabilities. Using the application supplied with the terminal makes it possible to configure preset alert and tracking equations for various applications and events on the terminal.

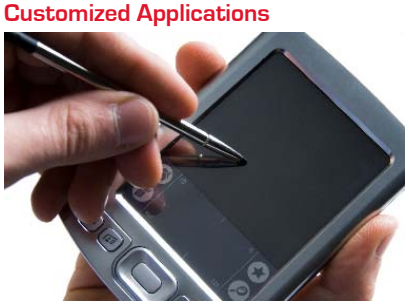
Customized Applications

The intelligence of the LeoTRAK provides great flexibility for developing specific applications for particular industries, installations or applications.

These applications include such requirements as;

- Fisheries Management
- Vessel Monitoring
- "Man Down"
- Data Collection
- Data input via PDA
- Fleet Management
- Multiple event driven alerts
- Specific device monitoring

Customized Applications



Having the flexibility to integrate with PDA devices makes it possible to have customized applications that use the data transmission modes of the LeoTRAK for sending and receiving information to and from remote sites.

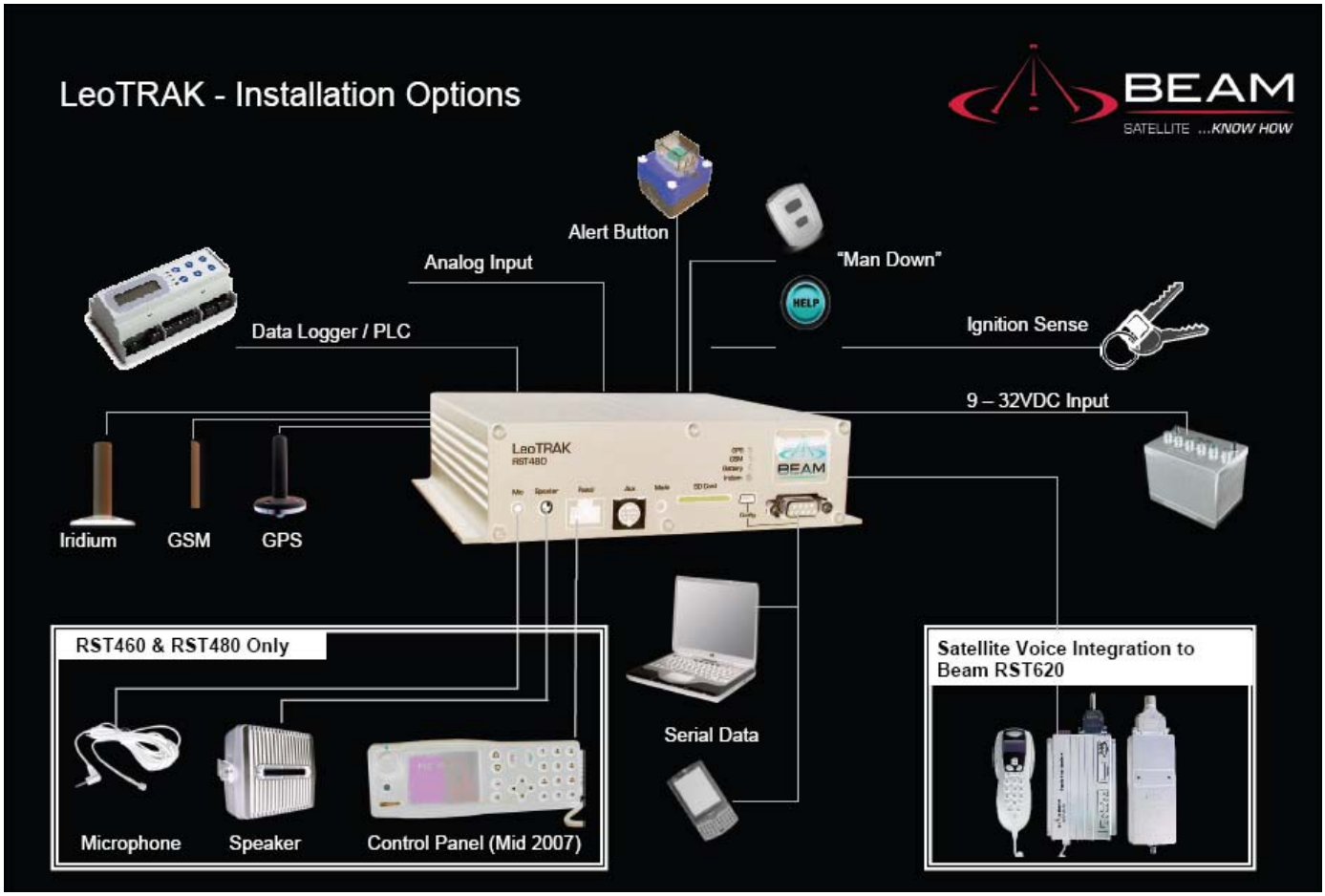
Intelligent Power Management

LeoTRAK provides an intelligent suite of effective power management options including the ability to use a high quality 15Whr battery back to provide back up to main power source or for independent operation.

The ability to run the unit in both standby and sleep modes provides for extended operational time for reporting specific events at anytime.

LeoTRAK - Specifications

	Item	Connector	Description	RST450	RST460	RST470	RST480
	In-built GPS Module		u-BLOX ANTARIS® LEA-4S GPS Module with SuperSense®	✓	✓	✓	✓
	In-built GSM Module		Siemens Quad mode GSM module		✓		✓
	In-built Iridium 9601		Short Burst Data module			✓	✓
A	Microphone Input	2.5 mono	Supports GSM Hands-free voice calls via Control Panel		✓		✓
B	Speaker Output	3.5 mono	Supports GSM Hands-free voice calls via Control Panel		✓		✓
C	Control Panel	RJ45	Connect Intelligent Control Panel (Available Mid 2007)	✓	✓	✓	✓
D	Auxiliary	7pin DIN	Development port for future Beam peripheral devices	✓	✓	✓	✓
E	Mode Button	Push button	Configurable button acknowledgments' / notifications'	✓	✓	✓	✓
F	SD Card	SD	SD storage card Included, up to 4gb of storage	128mb	128mb	128mb	128mb
G	USB Configuration port	USB (5pin)	Configuration of the LeoTRAK terminal	✓	✓	✓	✓
H	GPS LED	Tri colour	GPS Signal activity	✓	✓	✓	✓
I	GSM LED	Tri colour	GSM network coverage availability display		✓		✓
J	Battery LED	Tri colour	Battery status indication (When batteries fitted)	✓	✓	✓	✓
K	Iridium LED	Tri colour	Iridium network coverage availability			✓	✓
L	Configuration port	D9 Serial	Programming & configuration port	✓	✓	✓	✓
M	GSM Antenna	SMA	Antenna connector for GSM module		✓		✓
N	Power / IO port	D15 HD	Cable assembly for power & IO input (Supplied)	✓	✓	✓	✓
O	Battery / SIM cover		Removable battery door for easy installation	✓	✓	✓	✓
P	Iridium Antenna	SMA	Antenna connector for Iridium 9601 SBD module			✓	✓
Q	Device Port	D9 Serial	Support connection of external comm.'s devices	✓	✓	✓	✓
R	Thumb Screw		For easy removal of battery / SIM cover	✓	✓	✓	✓
S	Batteries	Li-polymer	Battery back up for secure and remote applications	Accessory	Accessory	Accessory	Accessory
T	SIM Holder	GSM SIM	SIM holder for GSM module		✓		✓
U	GPS Antenna	SMA	Antenna connector for super-sense GPS module	✓	✓	✓	✓
V	Mounting Holes	4mm	Mounting holes for securing terminal	✓	✓	✓	✓



Technical Specifications

Iridium Module	(RST470 & RST480 LeoTRAK Only)
9601 L-Band transceiver frequency	1616 - 1625 MHz
Minimum Packet Size	10 bytes

GPS Module	
u-blox SuperSense	LEA-4S GPS Module
Sensitivity	-158 dBm

GSM Module	(RST460 & RST480 LeoTRAK Only)
Siemens MC75 quad band module,	
Bands	850/900/1800/1900 MHz
GPRS	EDGE (E-GPRS) multi-slot class 10

Battery Specification (Optional Battery Pack)	
Battery Type	Li-polymer (Varta EasyPack)
Safety	voltage / temp' & short circuit protection
Capacity	15Whr
Charge time	4 to 6 hours

I/O Specification	(RST470 & RST480 LeoTRAK Only)
Alarm Loops	(2 Pairs) Normally Closed
General purpose I/O (x 2)	
Input Mode	0 - 35VDC tolerant (>3V = high)
Output mode	O/C 100mA sink to ground
Analogue Input	0 - 5VDC range
Ignition / Accessory power sense	0 - 35VDC tolerant (>7V = high)

Environment Specifications	Degrees ˚C	Degrees ˚F
Temperature		
Operating Range - (Without Batteries)	-30 to +70	-22 to +158
Operating Range - (With Batteries)	-20 to +60	-4 to +140
Battery Charging Range	0 to +45	-32 to 113
Storage	-35 to +85	-31 to 185
Humidity	85% non condensing	

Power Specifications	
Power input voltage DC	9 - 32VDC
Power Consumption	(WATTS)
Stand-by	TBD
Transmit	2.5
Sleep Mode	<3 milliwatts

Physical Specifications	Unit only	Packed
Dimensions - mm	177 x 150 x 47	335 x 228 x 69
Dimensions - inches	7.0 x 5.9 x 1.8	13.2 x 11.3 x 2.7
Weight - kg	0.82	1.6
Weight - lbs	1.8	3.5

* These weights are based upon the RST480 (Including GSM & Iridium modules)
Other models RST450,460,470 are less weight

Kit Contents	
Main LeoTRAK Terminal	RST450 / RST460 / RST470 / RST480
Main Power & Accessory Cable Loom	
128mb SD storage card (Sandisk)	
Serial Data Cable	
Configuration Software	
User & Installation Manuals	
CDR- User Manual, AT Command, Configuration Software	
GSM stub antenna	RST460 & RST480 only

Accessories	
Battery Li-polymer Accessory Pack (2 batteries)	RST040
Iridium mast mount antenna	RST910
Iridium bolt antenna	RST920
GPS mast antenna	RST919
GPS bolt mount antenna	RST901
GPS Compact glass mount patch	RST904
Dual Mode Iridium Helix / GPS Patch	RST902
Dual mode Iridium patch / GPS Patch	RST903
GSM glass mount patch	RST906