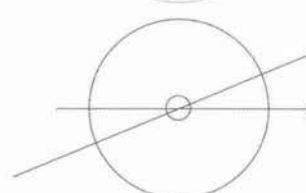




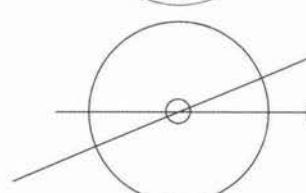
TERRAFIX



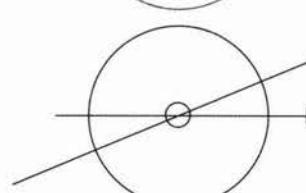
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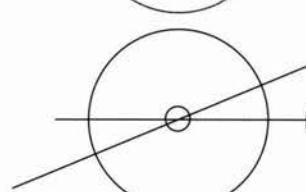
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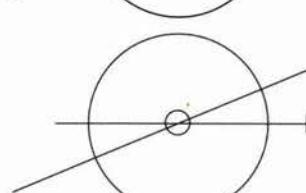
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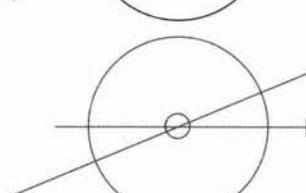
TERRAFIX



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TERRAFIX



# LOCATION IN AN INSTANT

WOULD YOU LIKE TO KNOW WHERE  
**YOUR ASSETS ARE?**

CREATE REPORTS ON SPECIFIC ACTIVITIES?



WITH TerraTRACK YOU CAN.

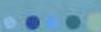
COST EFFECTIVE, FLEXIBLE AND  
READY TO MEET **YOUR NEEDS.**



Fleet Tracking... Asset Tracking... Vehicle Tracking...

REAL-TIME  
TRACKING

NO  
UP FRONT  
COSTS



Powered by

**TERRAFIX**

## TerraTRACK, cost effective tracking for the user.

Utilising the Terrafix Universal Tracker, (TUT), a reliable tracking device designed and supported by Terrafix. The user can manage and track all their assets anytime, anywhere in the world.

Track assets through any smart device



### TerraTRACK

A low cost tracking system that will operate over a GPRS network, but also has the ability to be a multi-bearer system, providing the user with 24hr tracking, vehicle reporting and telematics via a web based portal

The Terrafix TUT  
downloads the asset's  
data information  
via the GPRS



Web based portal to view full  
management report forms,  
vehicle telematics and full  
audit trail/replays



Access via a secure web based portal allows the users to easily track, manage and analyse their assets.

The flexibility of TerraTRACK means the user can access their assets through smart devices such as tablets, laptops, pcs and smartphones.



Personalised real-time access to system  
information of your TerraTRACK accounts

### FEATURES of TerraTRACK

- Secure web based portal to view online
- Powered by vehicle supply - no need for batteries
- No software installation needed
- Generate management report forms
- Optional panic button for emergencies
- No limitation on assets tracked
- Optional resilient bearer providing world wide functionality

**MAPPING**- TerraTRACK allows central management of all assets, locating and displaying positions using intuitive mapping and tables.

## Multiple map views



**Unlimited  
number of  
assets can be  
tracked**



**Monitor driver behaviour in real-time, view maps and detailed schedule reports**

**REPORT FORMS-** All data can be easily accessed as and when needed, tailored into management reports in either excel or PDF formats.

## **Reports include:**

- daily activity
  - mileage
  - odometer
  - utilisation
  - speed analysis



## BENEFITS of **TerraTRACK**

**Asset management to improve business needs.**  
**The TerraTRACK can**

- Increase productivity by reducing operating times
  - Improve security of the assets
  - Reduce operating costs
  - Real-time tracking
  - A range of inputs/outputs can be configured to offer the opportunity to add additional functionality i.e. messaging and emergency buttons

Email: terratracking@terrafix.co.uk

**GEOFENCES**– TerraTRACK benefits users with a Geofencing ability allowing the user to assign particular assets to certain areas. Geofences can be default shapes, user defined or from a prestored library.

The screenshot displays two main windows of the TerraFix software. The top window shows a map of a rural area with several purple and grey shaded regions representing geofences. A speech bubble points to this map with the text: "Email alerts can also be set for expiry dates of MOT/tax/services". The bottom window shows a detailed map of a road network with a green line indicating a journey path. A purple circle highlights a specific location on the map, with the text: "Customise reports to suit your business needs". The software interface includes various toolbars and data tables for vehicle monitoring and reporting.

**JOURNEY PLAYBACKS**– TerraTRACK allows the user to view historical data and journeys taken by the particular assets, displaying various journey statistics including direction of travel– average/max speed, time and distance, driver behaviour and a speed profile.



Terrafix can provide a bespoke tracking system to suit your needs

**CONTACT US**

FOR MORE INFORMATION PLEASE CONTACT US

Telephone: 01782 577015

Email: [terratracking@terrafix.co.uk](mailto:terratracking@terrafix.co.uk)

Web: [www.terrafix.co.uk](http://www.terrafix.co.uk)

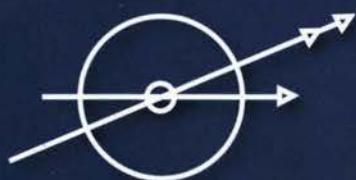


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# MOBILE & PERSONAL SECURITY SYSTEMS

PROVIDING

## INTELLIGENCE SURVEILLANCE PROTECTION



# TERRAFIX

# TERRAFIX

Total Solution Providers

Terrafix design and develop bespoke vehicle and personal based systems.

Over the years Terrafix have worked extensively in the security, military and police arena, supplying comprehensive information and surveillance systems.



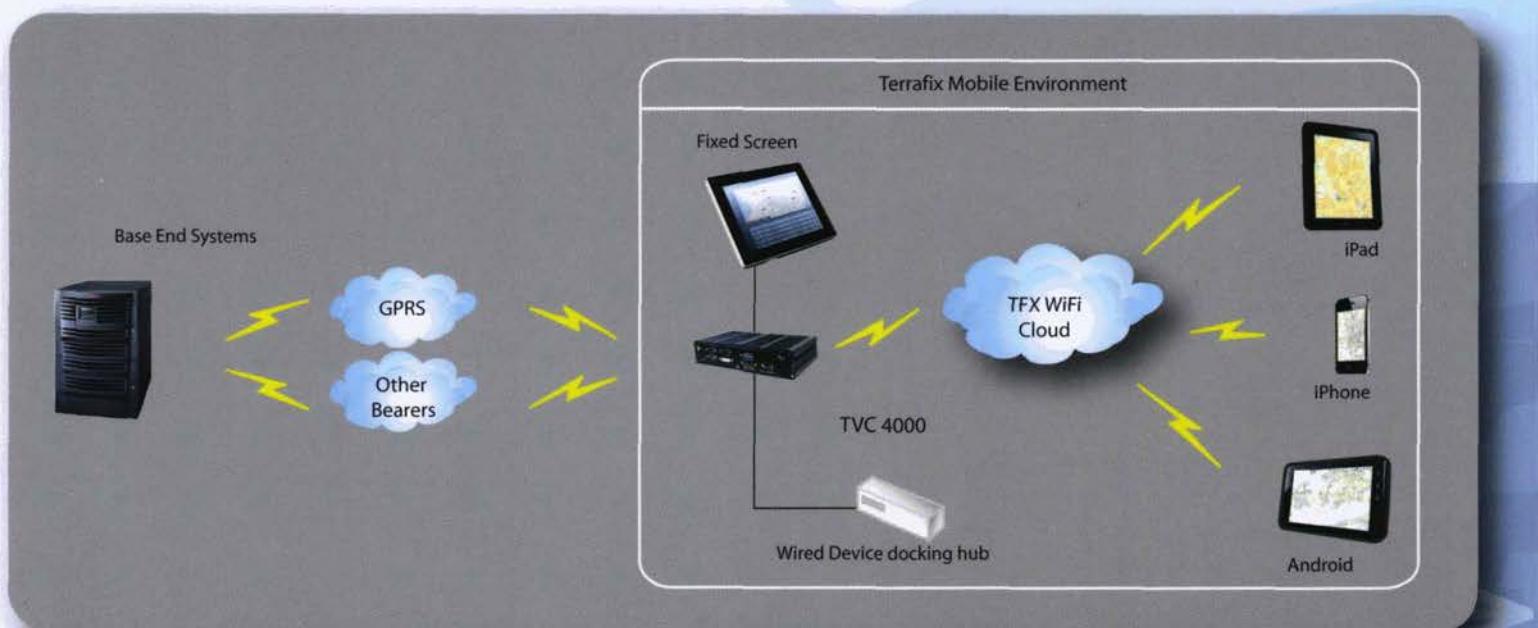
## TVC 4000



The TVC 4000, a universal communications in-vehicle server, with an architecture to support a range of devices all displaying a common array of functions, enabled by the TerraFix TVC cloud. The principle of the TVC cloud is to provide a common but flexible platform for all customers such as the Emergency Services, Police and Security Agencies alike with a range of software applications.

The 'cloud' provides the user with the ability to transfer information, over a number of devices including Apple, Android, Windows based or TerraFix bespoke, all in a powerful comparable way, irrelevant of which platform is to be used.

The TVC 4000 acting as a vehicle server, creates a secure information cloud which provides a cost effective, and flexible approach to information distribution. Vehicles installed with a TVC 4000 can act as a 'Hot Zone' for devices to gather or distribute data over more than one bearer.



# SAMS (Situation Awareness Mobile Systems)

Terrafix have developed SAMS, an asset tracking and management system, providing a flexible system to work as a stand alone GSM/ DMO (Direct Mode Operation) system, or part of an infrastructure network GPRS/ TMO (Trunk Mode Operation). SAMS will utilise the GPS in a variety of devices i.e. Terrafix TVC 4000, iPad, iPhone, Android or Windows Mobile.

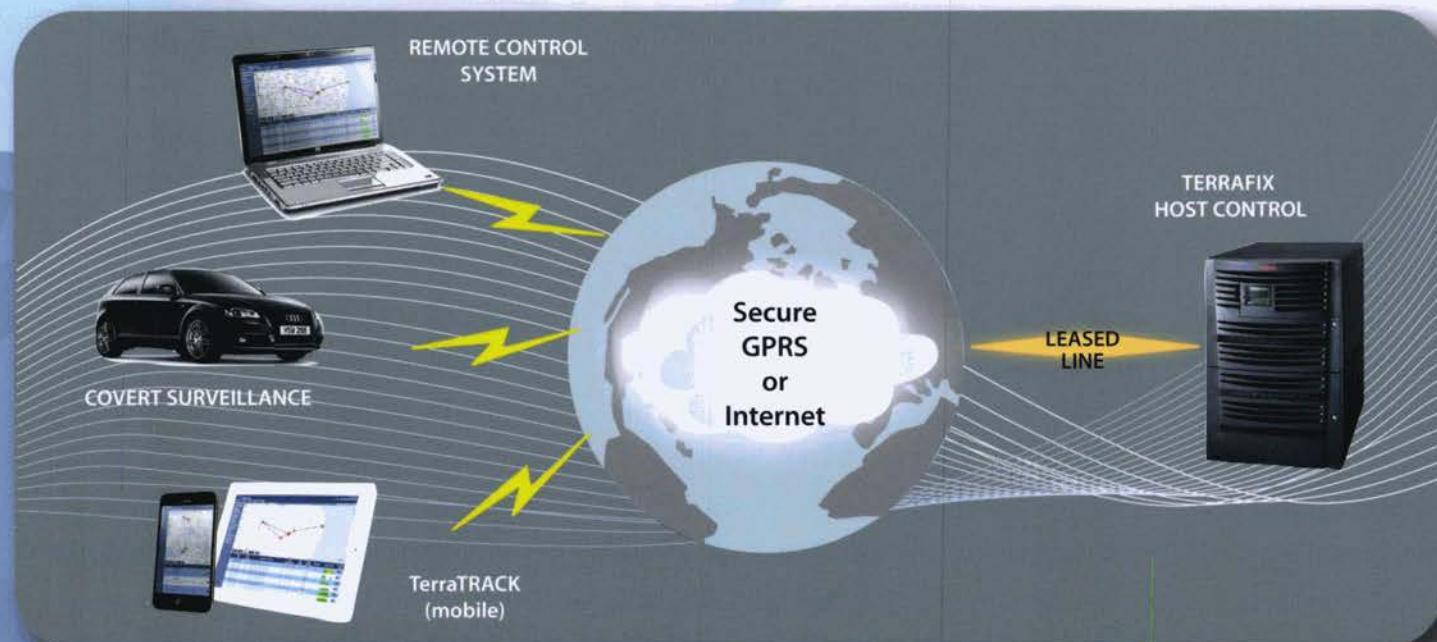


Using the Terrafix mapping platform, SAMS enables the user to have full visibility of all the assets, allowing them to manage more effectively and improve operational efficiency. Using the Configuration Manager application, the operator is able to control who is capable of seeing groups of assets.



## TerraTRACK (Secure)

Terrafix have a flexible system which offers all of the facilities expected from covert surveillance communities, such as tracking, replay, geofences, and analytical report generation. The infrastructure is such that the system can meet the security principles required by the customer from a completely hosted, web style interface, to an 'on customer site', complete stand alone system. Whichever is chosen, the user experience is the same.



# Security Solutions



The Terrafix AnT is a micro tracking device that can be adapted to operate in a multitude of different variants combining the latest in data and communications technology. The utilisation of GPRS enables the user to operate and configure the AnT remotely and safely. Supporting the AnT, is an integrated communications system with specialist developed software packages to operate in all environments. Robust, reliable, discreet and flexible in design Terrafix security systems offer perfect powerful tools for users where information and intelligence is the key.



## Vehicle AnT

The AnT can be packaged into a ruggedised waterproof case for mounting either permanently, or temporarily in or on a vehicle. The AnT can operate as a live tracking or logging device. The battery powered AnT is designed for quick deployment with complete operability from a remote location. The control system can set various power saving modes to maximise battery life reducing the amount of time needed at a vehicle and so limit the chance of compromise.

## Personal AnT

The AnT system can be utilised for personnel protection either for the protector or protected with the use of a variety of alarming sensors. Small in size the AnT is ideal for situations where a discreet body worn device is needed, it can be housed into clothing, briefcases or any other form of packaging. Providing both logging and real-time tracking functionality with additional inputs of audio and emergency button capability, the AnT is a highly adaptable device.

## MERCURY (SDR GROUP)

The Mercury Software Defined Radios are an evolving set of flexible radio platforms for deployment as static, mobile and hand portable devices, capable of providing an infrastructure free voice and data communications network, in harsh and challenging RF environments.



Flexible software and hardware modules are easily configured to create diverse, ADHOC communications, surveillance & electronic warfare systems capability.

## T.U.T

The Terrafix Universal Tracker, is a ruggedised low cost multi-bearer tracking system which operates primarily over a GPRS network, but comes with the capability to increase functionality by adding additional communication modems, thus providing the operator with uninterrupted tracking.



The TUT provides the user with a full suite of management report forms and web based control software, allowing the user to securely access their tracked assets at any time.

## COVERT AUDIO LISTENER

A dual-band GSM/GPRS cellular modem, integrated with a highly sensitive on-board microphone and dual-band antenna. The user will have the capability of switching between internal and external microphones allowing optimum positioning.



Suitable for use in the UK and across Europe as it operates in the 900/1800 MHz bands.



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# Terrafix Vehicle Computer 4000

## TVC 4000



**The TVC 4000, an in-vehicle server providing flexible, universal communications and system architecture aimed at the following markets:**

Emergency services -

- A&E
- EPRF
- PTS

Police and Security Agencies -

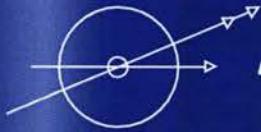
- Surveillance
- Friendly force tracking
- Situation Awareness

The TVC 4000 is a key component of the TME (Terrafix Mobile Environment) which is an architecture supporting a range of different devices and will include the design of applications which will provide a common range of functions irrelevant of the platform used.

The TME will include but will not be limited to:

- Apple
- Android
- Terrafix Bespoke
- Windows

The TVC 4000 will be the in-vehicle server generating the Terrafix Cloud, connecting a multitude of devices to a centralized intelligent transfer solution.



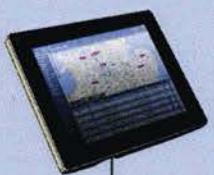
# TERRAFIX

## Terrafix Mobile Environment

### Base End Systems



### Fixed Screen



Wired Device docking hub

TVC 4000

TFX WiFi  
Cloud

iPad



iPhone



Android

### Benefits:

- All product/ devices will operate in a common way
- Intelligent Information Transfer
- Powerful, flexible architecture
- Backwardly compatible with existing Terrafix systems
- Expandable platform
- Modular
- Unlimited devices
- Multi- bearer



Terrafix Limited

web: [www.terrafix.co.uk](http://www.terrafix.co.uk)

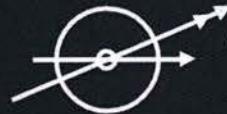
t: (01782) 577015



# TERRAFIX

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TERRAFIX

# Terrafix (TUT) CANBus Interface

The TUT CANBus Interface provides access to an in-vehicle system reporting facility, enabling the collection of:

- Vehicle telematic information
- Driver behaviour statistics
- Vehicle parameters e.g. blue lights operation
- Journey analysis

Utilising the existing Terrafix in-vehicle computer, and existing communications system data can be passed to multiple reporting platforms, for example the Terrafix Management Server or alternatively the TerraTRACK system. Bespoke reports may be generated by the customer in 'real time' utilising any of the data collected.

The Terrafix TUT CANBus Interface can be easily installed and is a cost effective enhancement to your existing Terrafix Mobile Data system, providing the user with effective and efficient management of resources.

Timesheet for JoeR (all journeys between Sun 16th Mar 2013 and Fri 5th Apr 2013)										
Day	Date	From	To	Start	End	Time	Distance	(Km)	Comments	Decisions
Sun	16-03-2013	Airfix Factory, Shifnal, Telford & Wrekin, Telford & Wrekin, TF10 8	Western Avenue, Coalport & Dunleath Central, Pits., KY12 8	08:32	18:07	12:35	144.48	474.8		
Tue	19-03-2013	MS. Hincky, Paken, FQ2 8	Digby Bay East, Pits., KY11 9	08:01	12:14	04:13	91.18	79.2		
Wed	20-03-2013	AIRF, Perton, Fylde, PR2 8	Shore Way, St Georges & Princess, Telford & Wrekin, TF2 2	07:48	12:45	04:58	94.98	472.1		
Thu	21-03-2013	MS. Hincky, Paken, FQ2 8	Shore Way, St Georges & Princess, Telford & Wrekin, TF2 2	07:25	17:54	09:59	91.05	91.8		
Fri	22-03-2013	88425, Chaset, Shifnal, TF10 2	Water Crescent, St Georges & Princess, Telford & Wrekin, TF2 2	07:28	14:28	07:00	93.28	170.2		
Sat	23-03-2013	Lincon Street, Finsbury, Croydon, CR1 4	Water Crescent, St Georges & Princess, Telford & Wrekin, TF2 2	08:32	16:21	09:51	92.36	198.0		
Sun	24-03-2013	(no journeys)								
		(Vehicle Cost)		17:23	17:23					
		Other Activity		18:00	18:00					
		Leave/Return								
Comments:										
Employee's Signature:										
Manager's Signature:										

Daily Activity for JoeR (all journeys between Mon 1st Apr 2013 and Fri 5th Apr 2013)										
Start	From	To	End	To	Time	Distance				
08:11	Talgarth Drive, Beaufort, Shifnal, TF10 5		08:17	Bassettts, Shifnal, TF10 3		00:06	0.5km			
09:57	Talgarth Drive, Beaufort, Shifnal, TF10 5		09:58	Lincon Street, Finsbury, Croydon, CR1 4		00:01	42.7km			
09:41	Lincon Street, Finsbury, Croydon, CR1 4		09:43	Broad Road, Edgbaston, Birmingham, B3 7		00:22	32.8km			
10:23	Broad Road, Edgbaston, Birmingham, B3 7		10:15	Hennells Street, Aspin, Birmingham, B13 3		00:51	5.8km			
12:08	White Horse Inn, Aspin, Birmingham, B13 2		12:15	Amesite Lane Way, Shore Heath, Walsall, WS2 1		00:07	22.3km			
12:02	Amesite Lane Way, Shore Heath, Walsall, WS2 1		12:49	Shore Way, St Georges & Princess, Telford & Wrekin, TF2 2		00:38	37.7km			
Journeys by Month on Tues 2nd Apr 2013 (0 miles totalling 3 hours, 16 minutes and covering 181.2km)										
Start	From	To	End	To	Time	Distance				
10:48	Digby Bay East, Pits., KY11 9		11:17	Summer Way, Shireoak & Chelton, Pits., KY11 3		00:29	29.4km			
11:45	Wymeynes Bros, Greatore & Ormiston, Pits., KY11 2		11:57	Thomas, Stans & Phillips South, Pits., KY11 6		00:12	13.8km			
12:36	Thomas, Stans & Phillips South, Pits., KY11 6		12:55	Craft North, Pits & Kinnos, Pits., KY7 2		00:18	62.3km			
13:26	Craft North, Pits & Kinnos, Pits., KY7 2		13:25	Whitern House, Coalport & Dunleath Central, Pits., KY12 8		00:00	61.8km			
13:40	Coalport House, Coalport & Dunleath Central, Pits., KY12 8		13:55	Whitern House, Coalport & Dunleath Central, Pits., KY11 8		00:14	7.7km			
13:53	Whitern House, Coalport & Dunleath Central, Pits., KY11 8		13:57	North Wynd, Eddinst, Middxian, EN9 1		00:04	47.6km			
20:42	North Wynd, Eddinst, Middxian, EN9 1		21:17	Western Avenue, Coalport & Dunleath Central, Pits., KY12 8		00:35	48.8km			
Journeys by Month on Wed 3rd Apr 2013 (0 miles totalling 3 hours, 48 minutes and covering 264.8km)										
Start	From	To	End	To	Time	Distance				
08:57	Chaffron Woods, Aylestone, Derby, DE10 8		09:34	Cappagh, Derby, DE10 8		00:37	26.8km			
11:41	Cappagh, Derby, DE10 8		14:02	Concourse Street, Finsbury North East, Angel, EC2A 7		02:21	104.4km			
14:15	Concourse Street, Finsbury North East, Angel, EC2A 7		14:22	East Park, London City, EC2A 3		00:07	8.3km			
21:37	East Park, London City, EC2A 3		21:38	West Street Road, Westminster, London City, SW1A 8		00:01	7.5km			
22:05	West Street Road, Westminster, London City, SW1A 8		22:44	100 Wardour Street, Soho, London City, W1D 4EY		00:39	19.8km			

# Terrafix (TUT) CANBus Interface



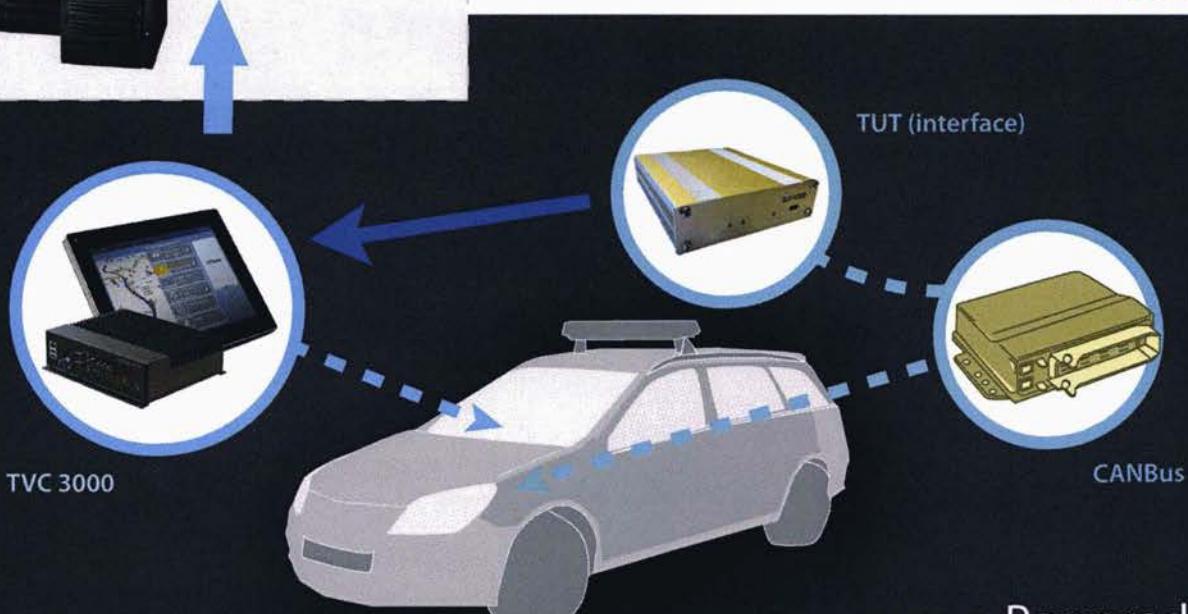
- Inexpensive CANBus adapter
- Can be integrated into existing solutions or stand alone
- Low cost communications
- TerraTRACK user interface providing:
  - Reports
  - Telematic Data
  - Tracking



Existing Terrafix System



TerraTRACK



TVC 3000

Powered by  
**TERRAFIX**

# Terrafix Vehicle Computer

## TVC 3000 (HD/F)



Flexible Screen Sizes



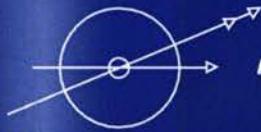
Combined Computing &  
Communications Unit

The TVC 3000 adding another level of flexibility to the Terrafix product range to cater for the ever increasing functionality and demands of modern Emergency Service.

- Expandable PC platform
- Variety of interface capability
- Communications Independent
- Dual Bearer
- Multi-screen Capability
- Application Independent

TVC 3000 a powerful in-vehicle computer with the full flexibility to attach different mobile screen sizes providing advanced processing, colour touch screen technology with low power consumption.

- HD** In built large capacity 'Hard Disk' to provide fully integrated mapping and Sat Nav option
- F** In built Flashdisk for customers who do not wish to use the integrated Sat Nav option



**TERRAFIX**



## Basic Configuration

- AMD Geode LX800 processor operating at 500 MHz
- 500 Mbyte RAM
- 1 Gbyte Flash Memory
- Integrated Automotive Hard Disk in shock mount, 30Gbytes
- Windows XP embedded
- External ports:
  - 2 USB 2.0 ports
  - 6 Serial RS232
  - Opto-isolated Input/Output (6 of each)
  - 1 Fast Ethernet 10/100 Mbps
  - Display Interface video SVGA up to 1024 x 768 resolution
  - Audio In and Out
- Integrated GPRS/ EDGE/ 3G/ HSDPA modem (up to 3.6Mbps subject to network availability)
- Internal 16 channel GPS receiver
- External relay control for power management of other devices
- Internal battery for resilience against engine cranking etc
- Typical Power Consumption less than 20 watts including display
- CE and E marked

## Options

- Remote TFT display with infra red touch screen  
10.4in and 8.4in at SVGA (800 x 600) and 6.4in at VGA (640 x 480)
- Processor upgrade up to Intel Core Duo 1.66 GHz
- RAM upgrade up to 1Gbytes
- Wireless Keyboard and Mouse
- Hubs for additional USB 2.0 and Ethernet ports
- Wireless LAN IEEE 802.11G to Trust network at Ambulance Stations
- Wireless LAN IEEE 802.11g to in-vehicle devices
- Navigation and Routing applications, customised to Ambulance service driving
- Application support for Voice over IP supporting simultaneous voice and data communications

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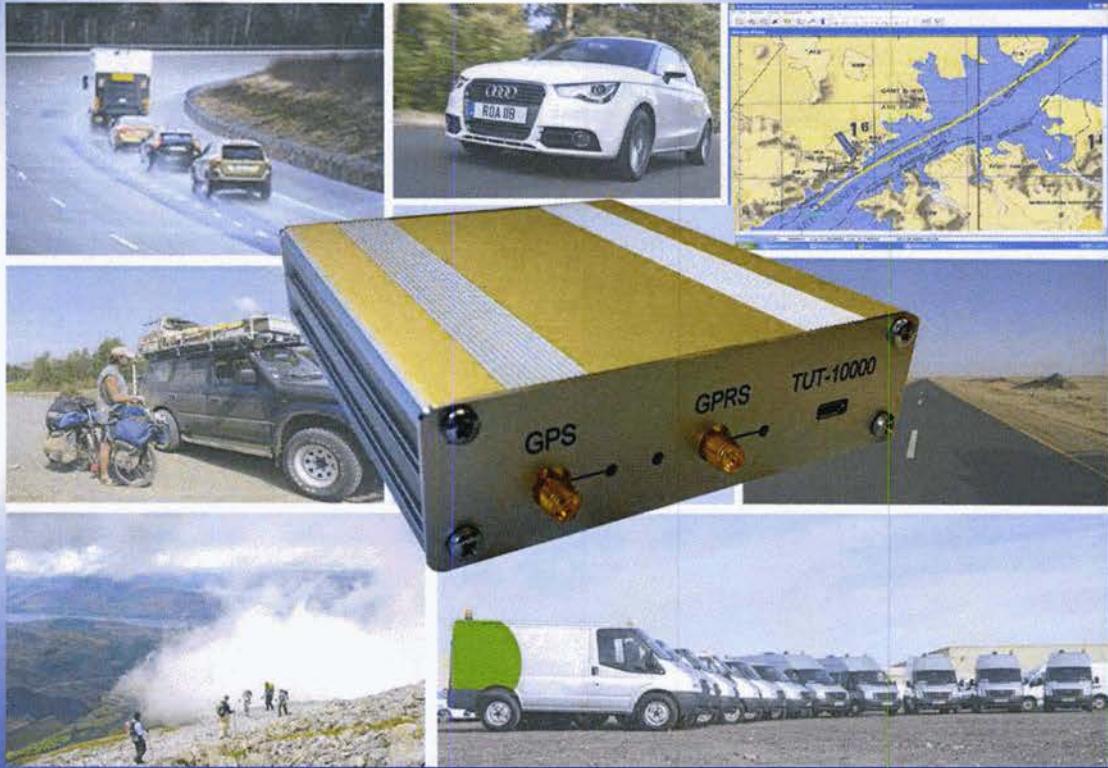
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# Terrafix Universal Tracker

# T.U.T

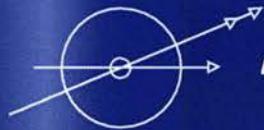


The T.U.T is a low cost multi-bearer tracking system. Primarily deployed as a GPRS tracking device but with the capability to increase the functionality by plugging an additional communications modem into the device.

Optional bearers include:

- Sepura TETRA modem
- Motorola TETRA modem
- Iridium Satcom modem
- Inmarsat Satcom modem
- Thuraya Satcom modem

The principle of the device is to provide complete flexible communications coverage up to worldwide availability with satellite communication but utilising the low cost options, such as when available.



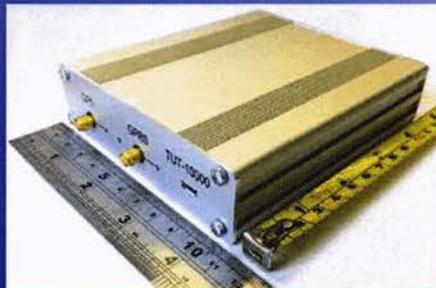
## TERRAFIX

## Typical Screenshots



The T.U.T's functionality includes:

- Send and receive text messages
  - Provide worldwide coverage
  - Full management report forms
    - Vehicle telematics
    - Full audit trail/replays
  - Track assets through smart devices: tablets, laptops, pcs and smartphones
  - Geofencing ability assigning particular assets to certain areas
  - Ruggedised housing suitable for harsh and abnormal operating environments
  - Emergency activation
  - Internet based control software
  - Power Input 9v to 16v
  - 4 inputs/ outputs
  - 2 RS232 serial connections
  - 1 USB



## Dimensions

T.U.T GPRS: device size of  
127mm x 105mm x 33mm

T.U.T Universal: device size of:  
127mm x 105mm x 47mm



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# Terrafix Situation Awareness Mobile System

## SAMS (SITUATION AWARENESS MOBILE SYSTEM)



**Utilising the GPS in a variety of devices on multiple communications bearers, Terrafix have developed 'SAMS', Situation Awareness Mobile System.**

'SAMS' provides the user with:

- full visibility of all assets
- administer control of the viewing platform
- enable grouping of assets
- improve operational efficiency
- manage assets more effectively

'SAMS' is an asset tracking and management system that provides a flexible system to work as a stand alone (GSM/ DMO - Direct Mode Operation) system, or a part of an infrastructure network (GPRS/ TMO - Trunk Mode Operation). It provides the user with a view of all the assets on the Terrafix mapping platform with levels of functional control.

The user can upgrade the system and go from 'seeing' the assets to 'controlling' their assets with enhancement of the Configurational Manager application. This application allows the user to control who is capable of seeing groups of assets.

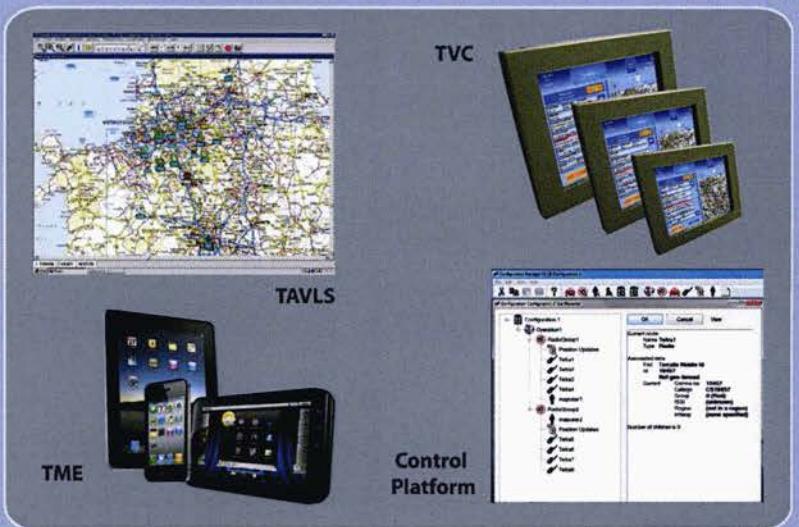


# TERRAFIX

## ONE SIZE DOESN'T FIT ALL



DMO/ GSM



TMO/ GPRS



NETWORK/ MULTI- BEARER



The Terrafix 'SAMS' System combines:

- Viewing/ Control Platform (Terrafix mapping)
- Google Earth Interface

With options to enhance with:

- Configuration Manager (Control Platform).
- Mobile Data Facility - TVC 4000, Android, Windows Mobile.
- Multi- Bearer Facility - providing multi- bearer capability, GPRS, Iridium Inmarsat D+.

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# TETRA Asset Mobile Solution

## T.A.M.S



The Terrafix TETRA Asset Mobile System combines GPS and TETRA Radio Technology to deliver a highly flexible and bespoke tracking solution within TETRA Radio Based infrastructures.

'TAMS' provides the user with:

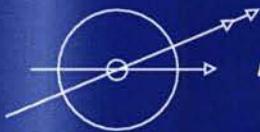
- Full visibility, tracking and audit of all assets
- Administer control of the viewing platform
- Grouping of assets
- Improved operational efficiency
- Effective asset management

'TAMS' is an asset tracking and management system providing the flexibility to work as a stand alone TETRA system (DMO - Direct Mode Operation) or part of a larger TETRA networked infrastructure (TMO - Trunked Mode Operation).

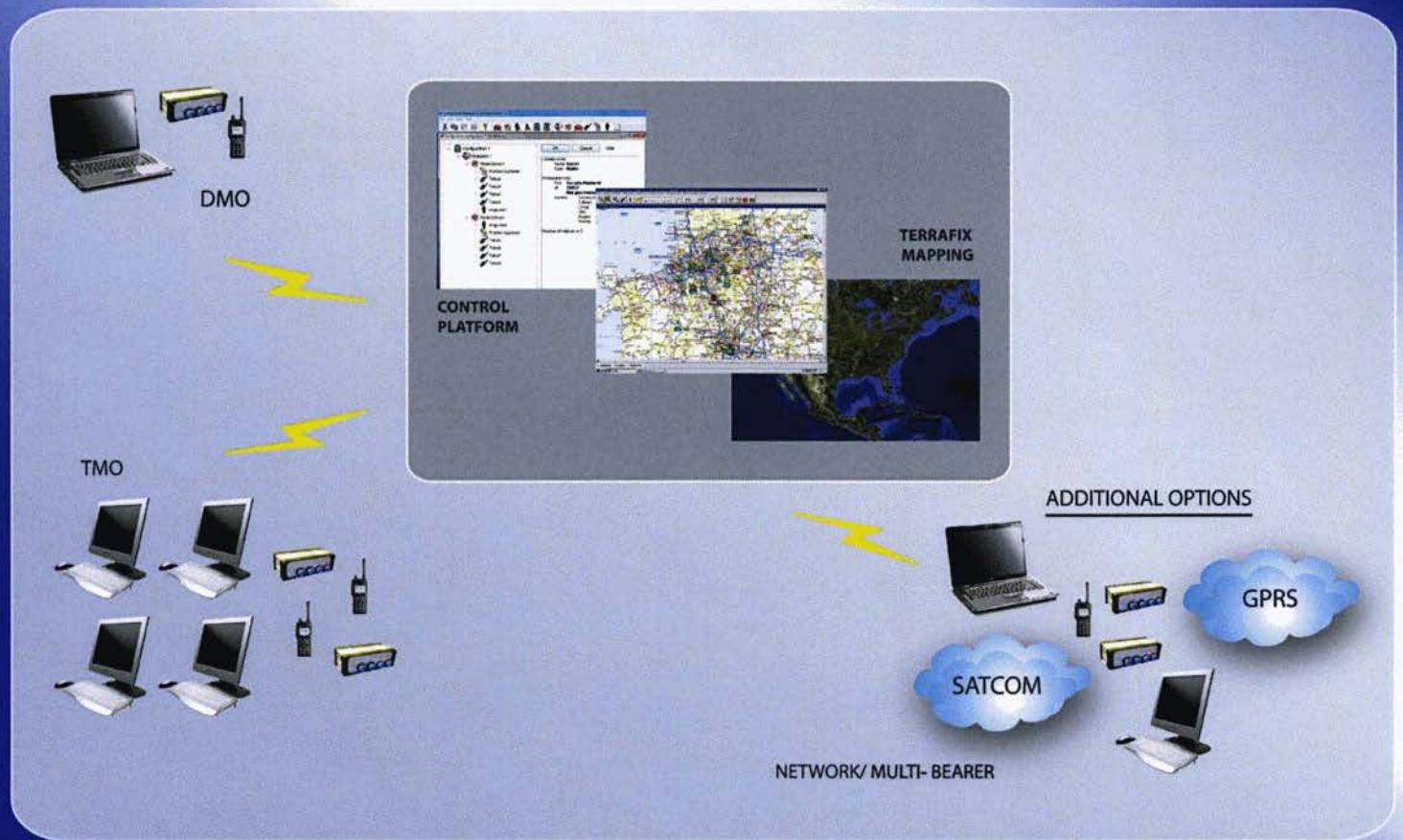
It provides the user with a view of all assets on the Terrafix mapping platform with varying levels of functional control.

Users can upgrade the system from 'seeing' assets to 'controlling' assets with the enhancement of the Configurational Manager application.

This will allow users to administer control of who is capable of seeing groups of assets.



# TERRAFIX



The Terrafix 'TAMS' system combines:

- Viewing/ Control Platform
- Google Earth Interface
- Quick deployment mobile system

Options to enhance capability with:

- Configuration Manager (Control Platform)
- Mobile Data - TVC 4000, Android, Windows Mobile
- Multi-Bearer Facility - providing multi-bearer capability, GPRS, Iridium, Inmarsat D+, Inmarsat 'M' to 'M' (mobile to mobile)

Terrafix Limited

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# TERRAFIX

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# Terrafix Automatic nano Tracker<sup>3</sup>

## ANT<sup>3</sup>



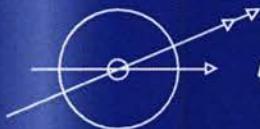
The Terrafix AnT<sup>3</sup>, a small waterproof discreetly designed device. AnT<sup>3</sup> provides the user with a powerful tool for use in challenging locations where normal GPS receivers cannot operate, allowing for a highly covert installation in a multitude of different places such as:

- Cars
- Small containers
- Clothing

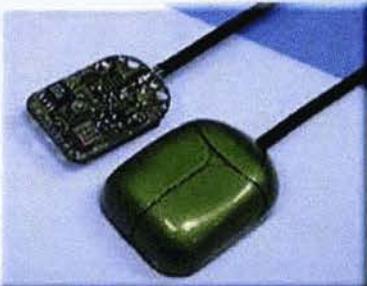
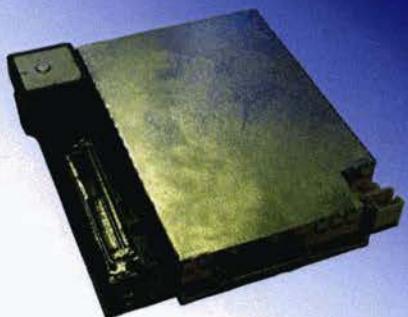
Utilising GPRS technology the AnT<sup>3</sup> can be quickly deployed and still provide complete operability from a remote location, reducing time spent at a vehicle and limiting the chance of compromise, with the functionality of remote download.

### AnT<sup>3</sup>:

- OEM device size of 53mm x 48mm x 10mm
- **AnT<sup>3</sup> enclosure is to at least specification IP66**
- Over -air real-time battery fuel gauge
- An internal GPRS/GSM modem
- Support for Multiple geo- fences
- Optional end-to-end encryption
- Can be used for both personnel and vehicle tracking
- Audio capability - earpiece and microphone
- Optional GPS aiding
- Integrated antennas



# TERRAFIX

**External Interface:**

- 1 x USB (Host or Slave)
- 1 x Input (3V logic)
- 1 x Output (3V logic)
- 1 x Ignition Sense
- 1 x Audio (microphone)
- 1 x Charging point [Li-ION]
- 1 x DC input

**OEM Unit Size (uncased):**

Integrated Antenna: 53x46x10mm [24.000mm<sup>3</sup>]  
External Antenna : 53x36x10mm [19.00mm<sup>3</sup>]

**Weight:** <50g**Temperature:**

Operating: -20 to +70 °C  
Storage: -40 to +85°C

**Power Requirements**

Battery Power: +3.2 to +4.5 Vdc

**Power Consumption [typical]:** [@3.7V]

Av. PMode 0 (no call): <370 mW (GPS, GPRS on)  
Av. PMode 0 (call active): <1050mW (GPS, GPRS on)  
Power Mode 1(sleeping): <15mW (GPS off, GPRS on)  
Power Mode 2 (sleeping): < 2 mW (GPS, GPRS off)  
Inactive: <1 mW

**Backup Power :**

GPS/RTC: < SuperCAP

**Connectors:**

Latching IO :USB, I/O, Ignition Sense, Audio  
Charging, DC input  
Battery Power: 2-w JST ZR series  
Battery Fuel Gauge: 2-w JST SR series

**GPS:**

Channels: up to 50 [GPS L1 C/A] [Galileo]

**Accuracy:**

Position <2.5m [CEP, 50%, -130dBm]  
Velocity 0.1 m/s [50%@30 m/s]  
DGPS/SBAS 2.0m CEP<sup>2</sup>  
Heading 0.5° [50%@30 m/s]

**Dynamic Capability:**

Max. velocity 515m/s  
Max. acceleration 4g

**Time To First Fix:**

Hot Start <1 sec  
Warm Start 29 sec  
Cold Start 29 secs, <1 sec aided  
Aided Start <1 sec

**Active Antenna**

Power +3.3Vdc  
Current 5 to 30mA

Sensitivity: -144 [cold], -160 [tracking] dBm

**GSM/GPRS modem:**

Frequency Band: 900/ 1800/ 1900 MHz  
Transmit Power: Class 4 (2W) at GSM900  
Class 1 (1W) at GSM1800  
Class 1 (1W) at GSM1900

GPRS Data Rates: 85.6 kbps downlink (maximum)  
42.8 kbps uplink (maximum)

Coding Schemes: CS-1, CS-2, CS-3 & CS-4

**SIM Card:**

Memory Card Antenna: 1x micro-SDcard  
GSM/GPRS: Integrated [opt. ext. connectors]  
GPS: Integrated [opt. ext. connectors]

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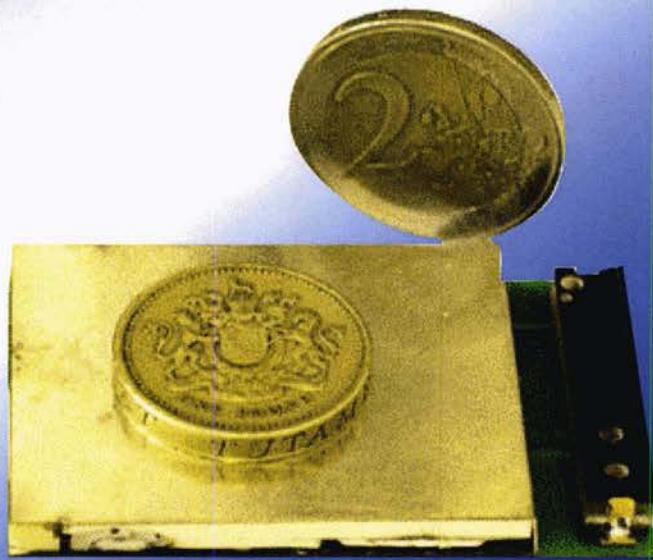
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# COVERT AUDIO LISTENER

[OEM MODEL]



## A Discrete surveillance device remote monitoring of live audio.

The Audio Listener consists of a dual-band GSM/GPRS cellular modem integrated with a highly sensitive on-board microphone and an on-board dual-band antenna. It operates in the 900/1800 MHz bands making it suitable for the use in the UK and across Europe.

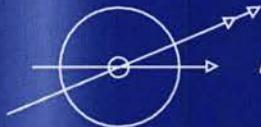
An interface for an external microphone is provided allowing optimum microphone positioning, with the capability of switching between internal and external microphones using DTMF tones generated from a telephone keypad. [The microphone sensitivity may also be dynamically adjusted using DTMF tones.] \*Option

The unit can be operated from a Lithium-ION or Lithium\_Polymer rechargeable battery or via a DC input. Integration of a charging circuit within the unit allows for powering and charging the unit simultaneously. This provides the facility of running from a stable DC supply, whilst automatically swapping over to battery should the DC power be removed/cut.

The integrated antenna removes the need for cumbersome/fragile RF connectors, enabling a discrete compact solution. Integrated power modes (controllable over-air via Terrafix's SkyTAVLs [or SMS]\*Option) allow for optimum battery life.

An on-board MCU minimises power consumption by putting the cellular modem into a sleep mode, whilst allowing for an automatic 'wake-up' on an incoming call. [Further sleep modes using the built-in RTC allowing programming of a 'wake-on-alarm', enabling optimum stand-by power where the unit is effectively off until the programmed date/time is reached.]

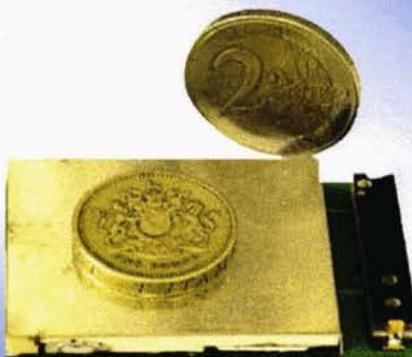
[A battery fuel gauge interface is provided. This allows remote monitoring of the remaining battery capacity/run-time. This data may be relayed via SMS updates to mobile phone or in real time over a GPRS connection to Terrafix SkyTAVLs.]



# TERRAFIX

**Interface:**

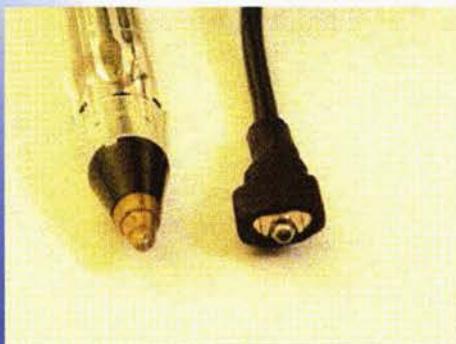
- 1 x Microphone (on board)
- 1 x Microphone (off board)
- 1 x Battery power input
- 1 x DC/Li-ION charger input
- 1 x Ignition sense input
- 1 x On/Off input
- 1 x Serial RS232

**Processor PCB Size:**

55mm x 35mm x 6mm  
Weight:<20g

**Temperature:**

Operating:-20 to +70°C  
Storage:-40 to +85°C

**Power Requirements & Consumption:**

Battery Power: +3.2 to +4.5Vdc (@ 4.2V)  
DC/Charger Power: +4.5 to + 6.5Vdc (@4.2V)  
Power Mode 0 [no call] :<150mW (GSM waiting for call)  
Power Mode 0 [call active] : <1150mW (call active)  
Power Mode 1 [no call] :<15mW (GSM waiting for call)  
Power Mode 1 [call active] : <1150mW (call active)  
Power Mode 3 [sleep] :<1 mw (GSM off, call not possible)  
Standby-time [Power Mode] : 16 days (using 1200mAh battery)  
Talk-time :4.5 hours (using 1200mAh)

**Connectors:**

Battery Power: 4-W JST 'ZR' series  
DC/ Charger/ Ign: 3-W JST 'ZR' series  
Ext. mic./ Serial: 6-W JST 'SR' series

**GSM/GPRS modem:**

Frequency Band 900 / 1800 MHz  
Transmit Power: Class 4 (2W) at EGSM900  
Class 1 (1W) at GSM1800  
GPRS Data Rates: 85.6 kbps downlink (maximum)  
42.8 kbps uplink (maximum)  
Coding Schemes: CS-1, CS-2, CS-3 & CS-4

**SIM:**

SIM connector: mini-SIM  
Antenna: 1 x Dual-band (on board)

*The Design and specification may be subject to change without notice*

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# Terrafix Personal Tracker

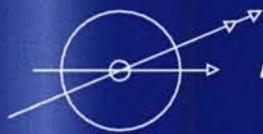
## PERSONAL TRACKER A FULLY PORTABLE PERSONAL TRACKING UNIT



Working alone in hazardous or threatening environments, the Terrafix Personal Tracker shows the location and status of the vulnerable staff automatically.

A small compact and flexible portable device, the Personal tracker provides the user with the piece of mind for situations where assistance may be required.

- Foot patrols & single crewed responders
- Agricultural and forestry workers
- Social workers
- District nurses
- Overt operations
- Mountain rescue
- Professionals visiting commercial & domestic premises



# TERRAFIX



### Functionality

- Discreet and small in size
- Fully integrated - no external wires
- Internal battery providing a minimum of 12 hours real-time tracking
- Flexible and suitable for various applications
  - ie - body worn such as belt, arm, pocket
  - vehicle based
- Additional emergency button/ microphone
- Configurable position updates
- Configurable over air

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# PDA SYSTEMS FOR PERSONNEL & VEHICLES

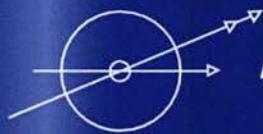
PSPV

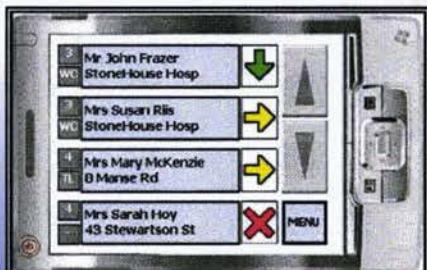


GPS Smartphone/ PDA

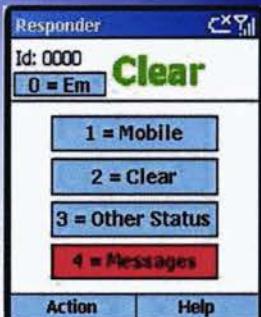
- **Mobilise and track all resources**
- **Remote management capability**
- **In-vehicle Satellite Navigation with Automatic Routing**
- **Functionality emulates the Terrafix bespoke professional systems developed for:**
  - **Non Emergency Fleet**
  - **Permanent & voluntary on-duty staff**
  - **Rapid Response vehicles**
- **Log performance data for customer defined analysis**

With advances in technology, it is now possible to integrate a GPS receiver into a Mobile Phone or PDA. Using a specific Terrafix Application the device can provide the same functionality as the professional systems deployed in front line vehicles.





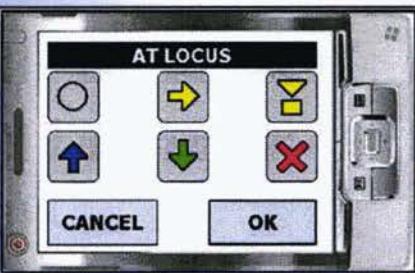
**Run Details**



**Status Screen**



**Patient Screen**



**Status Screen**

## Functions

### Terrafix Responder

- Remote log on/ off duty with confirmation
- Automated despatch messaging from CAD identical to front line ambulances
- Manual acknowledgement of messages
- Book mobile, at scene etc
- Every message automatically acknowledged to the sender
- Interface to built in satellite navigation, i.e TOM TOM
- Emergency button
- Automatic switching between GSM & GPRS

### Terrafix Non-Emergency Solution/ PTS

- Platform independent
- Automated scheduling to vehicle
- Dynamic schedule updates
- Manual acknowledgement of messages
- Integrated verification for log-on/ off
- Interface to the built in satellite navigation, i.e TOM TOM

### System Requirements

The PSPV system will integrate seamlessly into any service which currently use Terrafix AVLS and Mobile Data Systems with a GPRS capability.

For customers who currently do not use Terrafix equipment, a Managed service is available which is hosted from the Terrafix premises. This service can be displayed on either a dedicated private GPRS network or via the internet on a secure client application.

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# Terrafix Asset Tracking

## RFID (RADIO FREQUENCY ID)

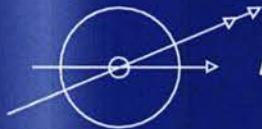


**Terrafix have developed a unique system which uses the in-vehicle computing infrastructure (TVC) to manage assets.**

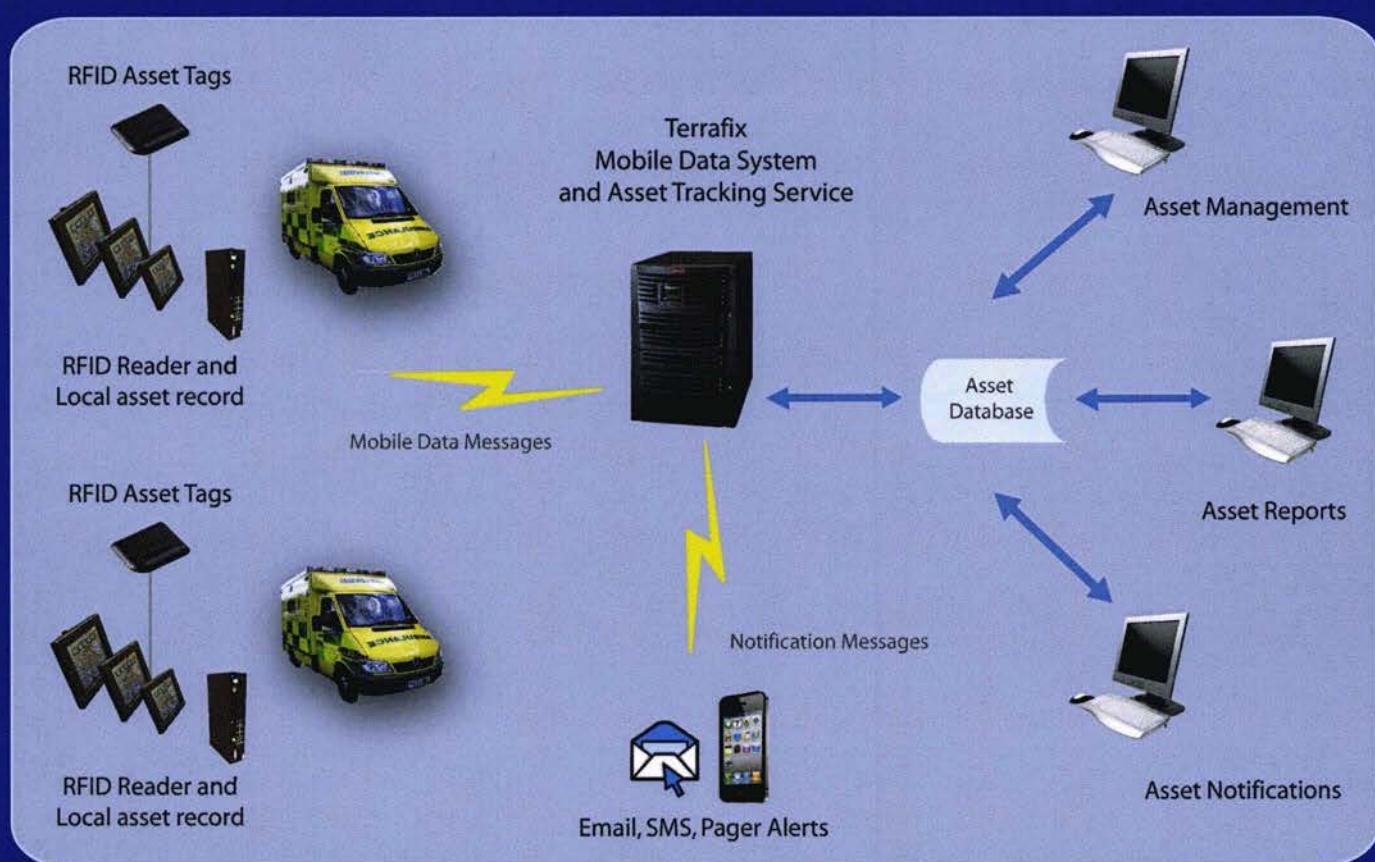
The Terrafix solution uses RFID technology to automatically manage assets within a vehicle. A small tag is attached to the asset and sends a unique ID to a reader connected to the Mobile Data Terminal. The Software package is embedded into the MDT and alerts the operator of the current state, or any change of state of all assets assigned to the vehicle.

### Benefits:

- Allows high value and critical business assets to be identified and located within defined areas.
- Assets can be associated with a vehicle in which they are deployed.
- The recognition of an asset within a defined area/ vehicle is automatic.
- When assets are removed from vehicle, ie left at the scene, a notification can be displayed locally and also reported to a central monitoring system.
- Interfaces can exist to other asset management tools and databases.
- Various sizes of TAG available to suit different equipment dimensions.
- Tag life of 5 years



# TERRAFIX



The Terrafix solution is not dependant on knowing what the asset is or the relevance of the equipment to the user or Service. It is business rule driven so that different assets can be tracked, monitored and reported in the most effective manner.

In summary, the Terrafix Asset Management System performs the following functions:

- Identifies which tags can be seen.
- Interfaces with the central control systems to associate tags with assets.
- Notifies the crew of the assets on board.
- Is able to present asset checklists for confirmation by the crew.
- Filters all visible tag information to identify assets associated with the vehicle or storage areas.
- Can report to the crew and centrally (eg. to a nominated manager) if the local asset register changes. This can be when assets are 'lost' which should be on-board, or when new assets are identified.

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# The Mercury SDR Group

# MERCURY



## Mercury SDR Group:

The Mercury group of Software Defined Radios from Terrafix Limited is an evolving set of flexible radio platforms for deployment in static, mobile and hand portable environments.

Flexible software and hardware modules of the group can be configured to support diverse roles such as communications, surveillance and electrical warfare.

Operational bands and waveforms are determined by the hardware and software module configuration, and this provides responsiveness to changing RF environments.

Software loads are available for various functions but other configurations can be developed on request.

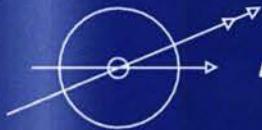
The radios support such functions as:

- Multiple waveforms
- Voice communication
- Interface to other networks
- Targeted transmissions
- Data communication
- Ad-hoc radio networking
- Navigation
- Scanning

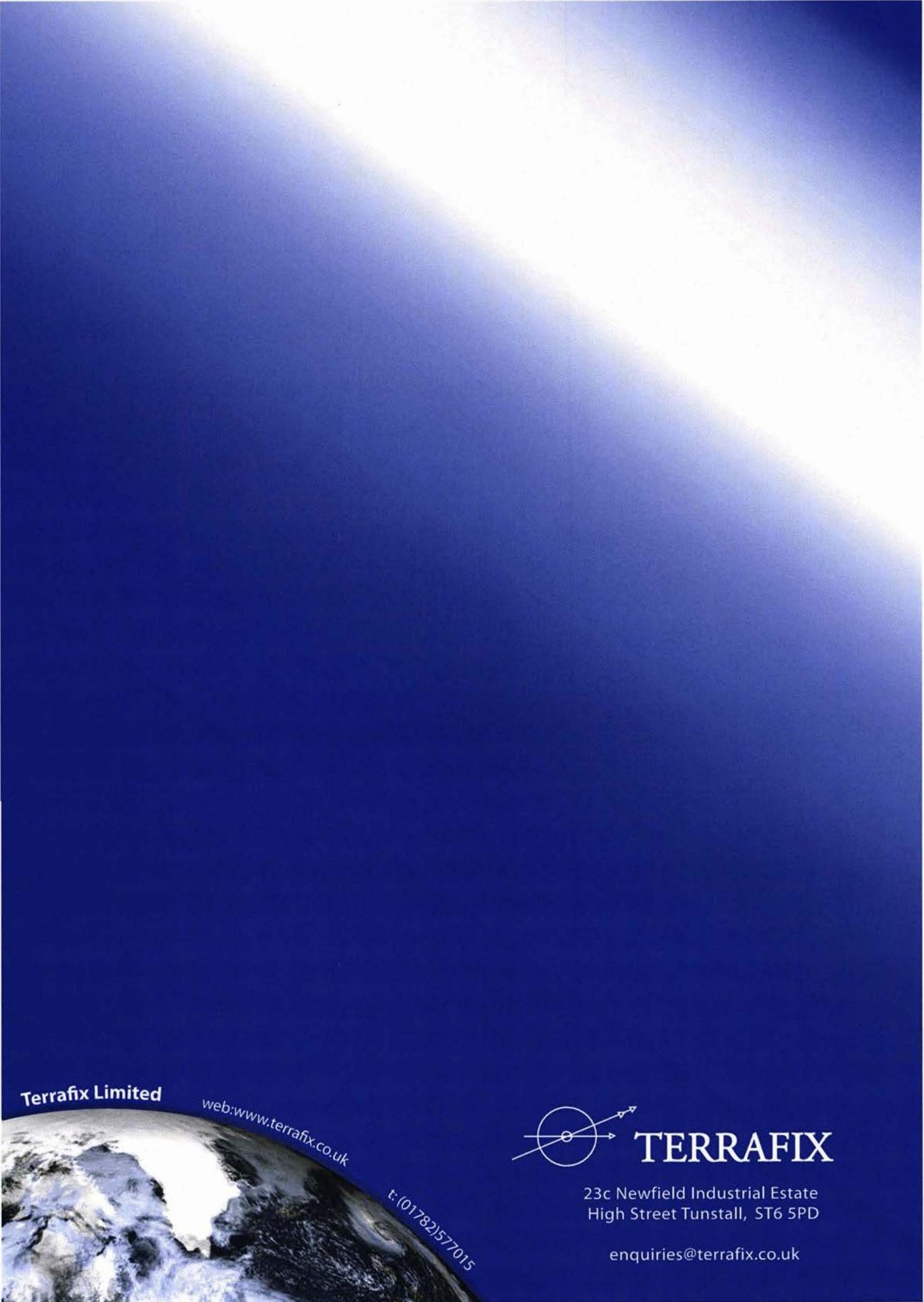
Developments are in progress to provide advanced self-learning and other cognitive radio functions.

Application includes:

- Enhanced situational awareness
- Emergency response support
- Surveillance
- Electronic Warfare



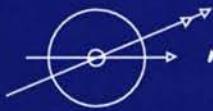
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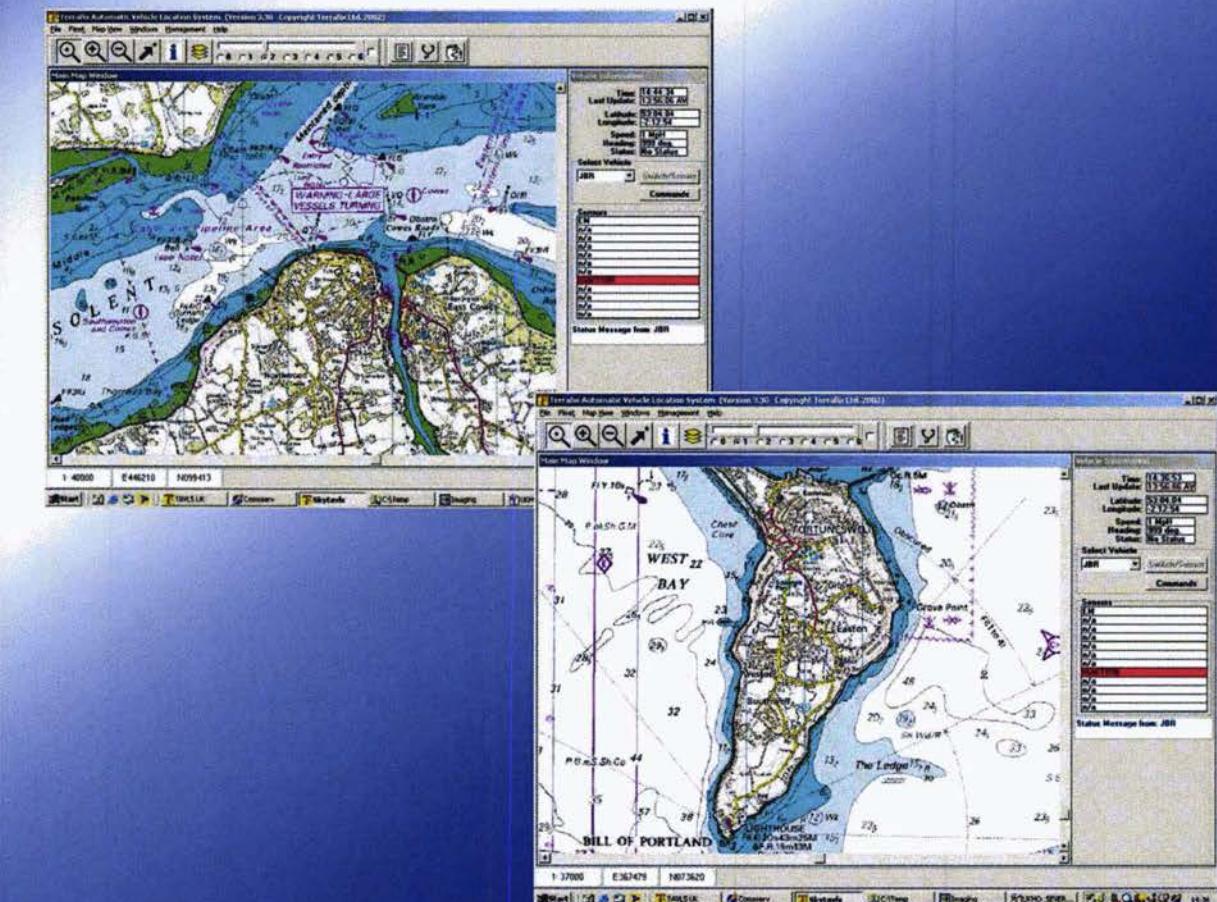
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# Terrafix Seachart Mapping

# SEACHART MAPS

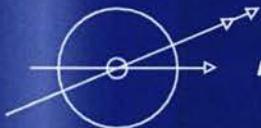


The Terrafix Integrated and Re-projected Mapping System is complied by the matching of Land Maps and Seacharts to provide users with seamless location tracking on land and offshore.

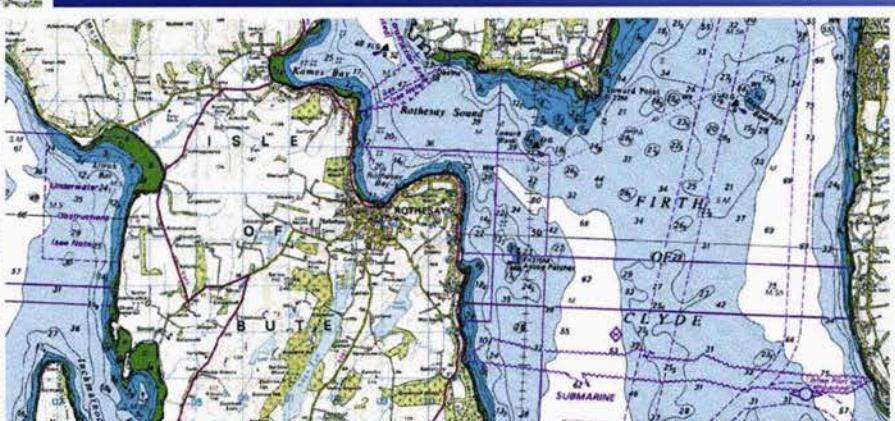
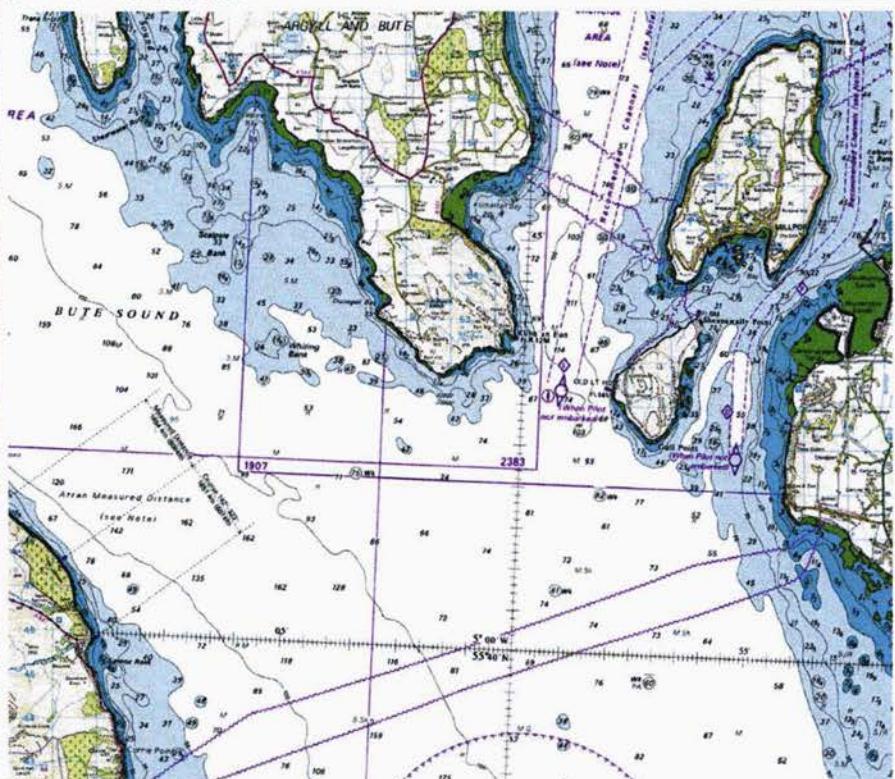
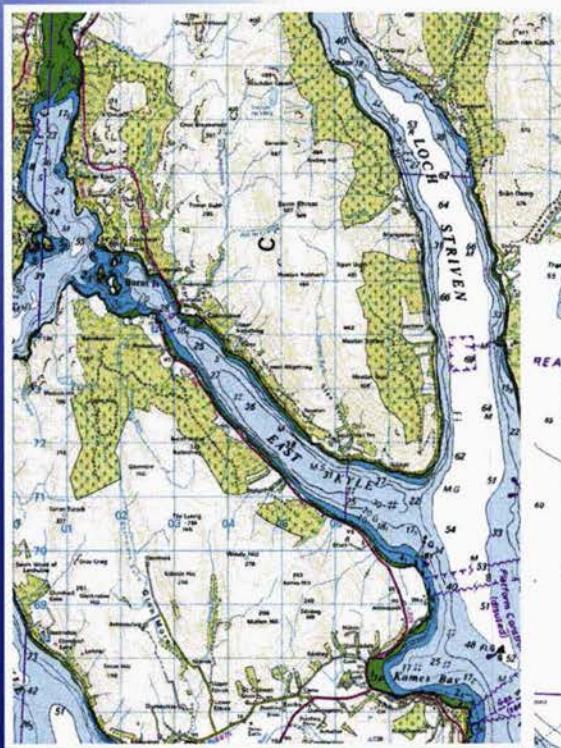
The UK Hydrographic Office Admiralty Raster Charts integrate seamlessly with 1:50000, 1:25000, 1:10000 OS Maps

The Seacharts will provide the users with: -

- Information - sandbanks, depths, wrecks, danger areas etc
- Position information on buoys, lighthouses
- Fully integrate with Global Positioning System (GPS)
- Seamless Hydrographic & Terrestrial Information



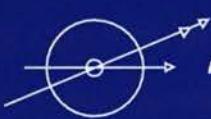
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# Terrafix Mapping

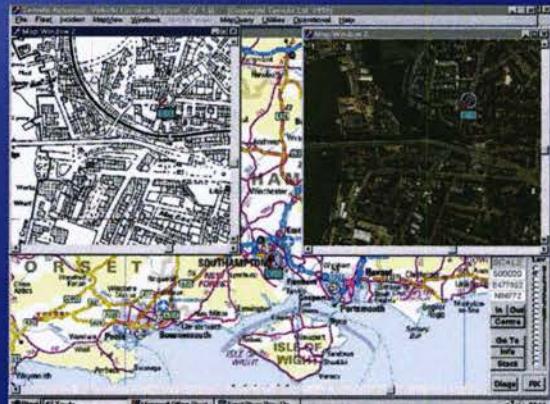
## TERRAFIX MAPPING



Terrafix Geographical Information System uses all forms of mapping sources including Aerial Photogrammetry

The Millennium Mapping Company became the first company to provide the complete large scale digital photographic map of the UK. Terrafix are the sole reseller of the photogrammetry of the emergency services.

All photographs have been correction ortho-rectified. This is achieved by computer processing to adjust for terrain variation, camera optical effects, ground control points, colour balancing and edge-matching therefore providing a seamless photographic map of the UK.

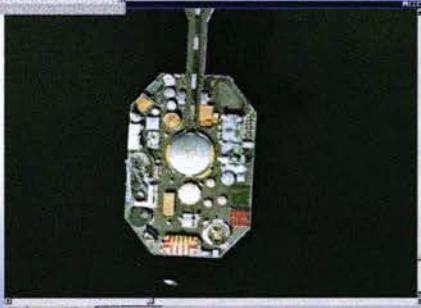


The use of aerial photogrammetry has many benefits they are:-

- Real geographical features, such as lakes, forests, mountains, rocks
- Sense of building height and type building, i.e single storey, towerblock
- Easily identifiable landmarks for guidance
- True width of the road rather than a representative width
- Junction details
- When used with other mapping source can highlight the changes, such as new housing estates, new roads, carparks
- Landing sites for helicopters
- Use on base station mapping terminals or mobile data terminals
- Available in 1km square tiles

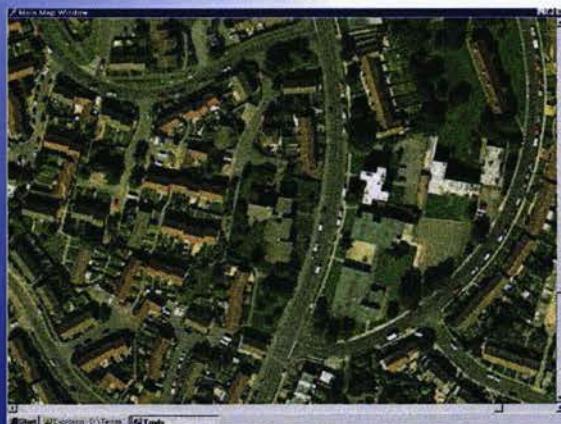


**TERRAFIX**



When incorporated into Terrafix's Geographical Information System the aerial photogrammetry enables the :-

- Overlay of vehicle positions and status
- Overlay of text data, eg. road numbers, house numbers, postcards
- Attach image and text files
- Can be mixed with other map sources, i.e Philips Ordnance Survey
- Overlay of route and isochronic data



## Specifications

- High definition colour photos
- Each photograph has 24 bit colour and a resolution of 1200dp
- Max resolution of 25 cm on the ground
- Viewable at very large-scale 1:500, 1:1000, 1:2000 etc
- Seamless view of the UK
- The photography complies with the RICS specification required by professional users

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# LAND NAVIGATION SYSTEMS



## Terrafix Limited

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Certificate Number FM 36024