ACN 122 898 926

Overview of Global Tracking Solutions

Introduction

In today's world of uncertainty it is pleasing to see that one company, Global Tracking Solutions (GTS) Pty Ltd, has developed a system of tracking explosives, electronically, from cradle to grave. By utilising Radio Frequency Identification Device technology, GTS has developed a number of systems that allows both explosive manufacturers and mining companies to provide safe storage, security, tracking and regularity compliance in the use of explosives.

Global Tracking Solutions Pty Ltd (GTS) was established in 2006, to develop and commercialise a turnkey solution for the tracking and recording of explosives movements. The system required to carry out this task must be attractive to both explosive manufacturers and their end users at an economically viable cost.

Radio Frequency Identification Device (RFID) technology

RFID tags are Automatic Identification and Data Capture (AIDC) devices with the capacity for safe, fast, and robust reading/writing, storage, and remote retrieval of data via radio waves.

RFID can:

- Provide explosives manufacturers and major mining companies with a technological and business advantage, especially those trading with EU countries
- Seamlessly integrate a Explosive Tracking Code into your current inventory system
- Improve security and accountability of explosives between manufacturing and field application
- Improve tracking of explosives and detonators in the field for better post-blast analysis

Furthermore, the use of 13.56 MHz read/write RFID tags meet important safety considerations because:

- It is below the power required to reach the minimum no fire zone for an electric detonator
- It is a magnitude greater than the Australian Standards (AS 2187.2-2006), where it states that no mobile phone devices in the 800 to 2100MHz range are allowed within 20 metres of explosives

RFID can provide both an inventory tagging process along with product traceability throughout every stage of manufacturing and use of explosives.

Adding Explosives Tracking Code (ETC) to Existing Manufacturing Systems

GTS has developed a single **set of protocols**—the **Explosives Tracking Code (ETC)**—for the layout of an RFID tag that all manufacturers and users of RFID technology in explosives can adopt as an industry standard. The key advantage to manufacturers is that current barcode information can be embedded into the RFID tag without the redesign of existing inventory management systems.

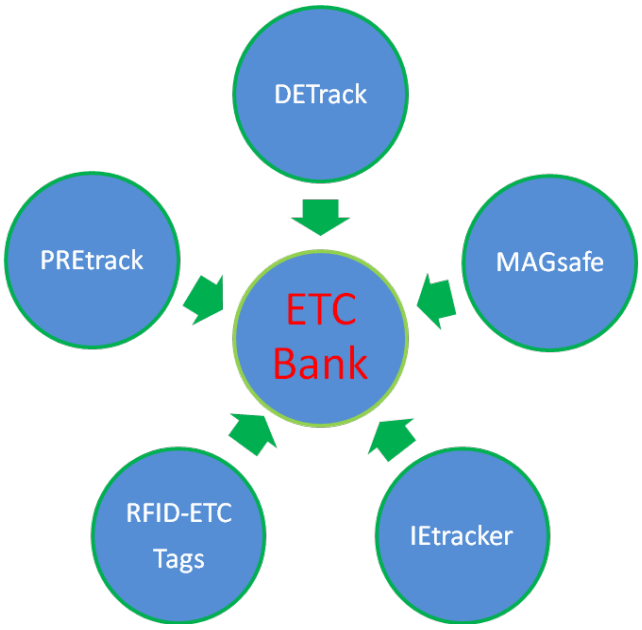
The RFID-ETC protocol meets the requirements of EPC Gen 2 and ISO standards and is currently being reviewed by the Australian ISO working group. This protocol surpasses the minimum criteria for data accountability and recording requirements, and can be used virtually indefinitely in both civilian and military applications. For example, in a typical manufacturing plant, 268,777,216 combinations can be used in a single RFID tag for 16 product types within a-24 hour period without duplication in 99 years.

New Regulations – Commercial Explosives Accountability and Tracking

On 31 Dec 2007, the Brazilian Government mandated that all explosives used within the country were to be identified to a unit level. In April this year the European Union (EU) group of countries established regulations requiring all 27 EU countries to possess commercial explosives accountability and tracking at a unit level by April 2012. The leading-edge RFID-ETC technology from **Global Tracking Solutions Pty Ltd** (GTS) allows both explosives manufacturers and mining companies to fulfil and easily exceed these requirements.

Global Tracking Solutions Pty Ltd systems

GTS continues to develop and grow its commercial core technology and intellectual properties. This allows GTS to deliver an appropriate product to manufacturers, governments, and other industries requiring the identification and tracking of explosives solution to their current and future needs. The following are the GTS systems developed to utilise this technology.

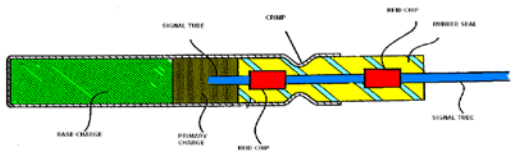


GTS Flow chart on traceability

The Products

PREtrack is the application of RFID technology in the explosives manufacturing system to allow the tagging and tracking of explosives throughout the manufacturing process. The PREtrack process is set up to record the QA/QC data along with the operational inputs and supplies this information to the PREtrack server. RFID tag information includes product name, date of manufacture, net explosive quantity, materials used and operational information is automatically enter within the RFID-ETC tag.
PREtrack is currently operating with Johnex Explosives in Kalgoorlie with RFID tagging at a box level. This allows Johnex to have tracking and traceability of these boxes anywhere in Australia.

DETrack® is the primary product for the tagging of detonators with their own individual ID number through an RFID chip. By imbedding a detonator with a security tracking devise in a way, that the removal of the internal tag would create the detonator to be inoperative. Faster and precise data recording will eliminate record keeping dilemmas and allow secure data transfer within a controlled structure. This, combined with a second identical RFID tag within the unit is the only detonator product that contains a built in redundancy system to facilitate tracking for the life of a detonator and possibly beyond.



DETONATOR WITH RFID CHIPS EMBEDDED

MAGsafe® is a computerised cabinet designed to record explosive movements into and out of explosives magazines by approved personnel via RFID. The cabinet contains both its own tracking and record software which link to our explosives management control and processing software and is integrated into a high level access security program. Combining this with Bio Reader access controls and a 5x5 risk matrix, the system sets a new level for security and risk monitoring.
The cabinet comes with both as RFID and laser printers for the printing of tags and reports. MAGsafe® can also be used in both Electronic Proof of Delivery (EPOD) and consignment stock management with live reporting on actual stock movement and stock on hand. This speeds up the process and efficiency of ordering while supporting manufacturing and consumers.

MAGsafe cabinet in operation

IEtracker is a computer based system and hardware that allows Drill and Blast Engineers to design blast patterns on their current software and then download the information onto a PDA (IEtracker). This patented software and system allows true identification of blast holes via the PDA technology. Where individual explosives units have an RFID tag the IEtracker will log each unit to a given hole when loaded. At the end of loading an electronic download allows for a fast interface against planned v actual blast design allowing remedial action to be taken where necessary.

Field operation of IEtracker

ETC Bank is a central data collection and management point for RFID-ETC users around the world. This information is secure and can only be accessed by authorised personnel. ETC Bank collects data from RFID-ETC tag suppliers, explosives manufacturers, MAGsafe®, IEtracker® and the transport industry along with other approved operations. To provide a real time access point to identify the location of an RFID-ETC explosive tag and/or who was the last approved person to handle this explosives anywhere in the world.

Product safety evaluation

In June 2006 field testing was conducted at the Baldivis Explosives Reserve to confirm the safety of the RFID systems. These successful tests were conducted by Mr Graeme Mears (Technical Director) from DataNet under the regulatory controls of the then DoCEP Principal Explosives Officer - Mr. Brian Roberts. Three high powered RFID reader units were tested against a number 8* electric detonator in both an open and closed lead wire configuration.

Field testing being carried out at Baldivis Explosive Reserve