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Wireless Automated Response Positioning System

What is WARPS?

WARPS is a unique method for determining and transmitting the identity and location of remote vehicles over existing two-way radio networks, whenever the microphone press-to-talk button is used.

WARPS includes a GPS receiver, control unit and radio transceiver interface housed in a small rugged box that enables remote in-vehicle units to use existing radio networks to automatically transmit their identity and location to fixed base stations or mobile command units which are linked to a desktop PC or laptop or handheld computer. All information received is displayed on the computer screen using standard mapping software, and can be projected for wider display using standard computer peripherals.

WARPS was designed specifically for rural fire-fighters, but lends itself to a variety of applications and any type of vehicle on land, sea or air. It has applications for emergency services or public safety organizations such as coastguards, by airport (vehicular) ground traffic controllers, rail or road freight companies, and by mining and exploration corporations.

WARPS technology is protected by a worldwide provisional patent.

How does it work?

WARPS receives GPS satellite signals via a small GPS aerial mounted on the vehicle roof, calculates the vehicle's position from these signals and, at the end of each voice transmission, transmits the vehicle's identity and latest position over the radio. The remote vehicle may also be polled (interrogated) from a WARPS Base Station Unit or a mobile Command unit.

Under **WARPS** patent-pending technology, no lengthy data transmission protocols or additional channels are required.

Applications

WARPS ability to integrate information to one central point can improve operational planning, and improve response times, thus enabling more effective deployment of resources. This can be further enhanced by integrating information from land and air.

Airborne Applications

WARPS can be mounted in an observer aircraft to provide realtime fire-front information direct to the Fire Control Centre, for integration with vehicle deployment data, and display on the same screen as vehicles.

Incident Management

WARPS Base Stations maintain a log of all transmissions (in flat, Excel files) from all vehicles. These can be retrieved after the event to recreate paths of individual vehicles, which can be used to generate management reports or, if required, for a Coroner's enquiry.

WARPS-derived data can be further enhanced with the use of **WARPS Visual_Plus** software developed by **RapidMap** for use with MapInfo providing access to multiple information layers.

For more information see ***ww.warps.com.au***

Authorised WARPS Dealer

WARPS™ DATA SHEET

FUNCTIONAL DESCRIPTION

WARPS is a peripheral device for mobile radios which transmits vehicle identity, GPS position and status when the radio microphone (Press To Talk) button is released, or when polled from a fixed base station.

WARPS avoids the use of standard data-transmission protocols, and uses a unique patent-pending solution to enable data transmission without interference over voice channels.

PHYSICAL DESCRIPTION

WARPS is housed in a small rugged metal box (dimensions 156x102x45mm) with a base mounting plate (198x99mm) with holes allowing fixation where desired.

The **WARPS** unit connects to the mobile radio through the radio's auxiliary connector and by cable to a roof-mounted GPS antenna.

WARPS transmitted data integrates with commercially available mapping software to display all vehicles on a PC screen – as colour-coded pictograms or labels with vehicle ID and status. **WARPS** data can be simultaneously displayed across all networked computers.

FEATURES

- 16 channel GPS receiver
- Last good fix always saved
- Internal Watchdog timer
- Data transmission with Fast Frequency Keyed Shift modem provides improved signal to noise ratio – enables better performance in poor radio environments
- Data transmitted in very short (<200 ms) audio packet over radio audio channel when mic PTT button is released
- Does not require allocation of discrete channel for data transmission
- May be polled for status and position from WAARPS-equipped base station.

Optional Features may be specified by customer, eg: transmit a regular time intervals or when activated by some external event.

VARIANTS

Three **WARPS** variants exist:

- Remote WARPS
- Base Station WARPS
- Command WARPS

1. **REMOTE WARPS (Mobile)**

- Transmits vehicle ID, Position and Status when mic PTT button is released
- Can be polled by Base or Command WARPS
- Has RS-232 output presenting standard GPS NMEA data, enabling laptop or handheld device to be used by crew to display own position on screen using standard mapping software.

2. **Base Station WARPS**

- Located at fixed site and connected to both radio and PC networks
- Receives messages from all mobile Remote and Command WARPS
- Displays vehicle ID, GPS location and Status
- Using WARPS software can selectively poll mobile Remote/Command WARPS for position and status, or can "group" poll a selected number of devices
- Base Station does not have a GPS receiver and cannot determine its own position

3. **COMMAND WARPS (Mobile)**

- Designed for use as a mobile Base Station in Command Vehicles
- Similar to Base Station WARPS but has an internal GPS receiver
- Does not transmit position when mic PTT is used
- May be polled by fixed Base Station for status and position
- Can be connected to laptop, handheld PC or similar device using suitable software

REMOTE WARPS OPERATING MODES

"Present Position" Mode

- Sends identity, position and status on release of mic PTT or when polled

"Continuous Position" (Land Vehicle or Airborne) Mode

- Used for plotting fire-fronts
- Requires an observer to activate an external push button
- Whilst in continuous transmission mode, blocks voice operation for duration.
- Once activated transmits ID, position and status once every two seconds
- Transmitted status indicates continuous mode, and Base Station PC displays a "snail-trail" of vehicle or aircraft