

- Light Based Non-Invasive Sensor
- Traffic Counting & Classification
- Accurate Traffic Speed Measurement
- Multi-Lane Operation & Lane Identification
- Portable, Easy to Install & Low Maintenance
- Mobile & Fixed Communications & GPS Location
- Low Power Operation for Battery or Fixed Power
- Extreme Temperature & Environmental Performance

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The TIRTL counts & classifies vehicles, determines the lane and measures the speed of passing vehicles using a unique light based technology. TIRTL is non-invasive and it operates with uni-directional and bi-directional multilane traffic. It consists of a transmitter unit and a receiver unit on opposite sides of a carriageway and it uses two parallel and two cross light beams at axle height to measure vehicle information.

TIRTL has been engineered to the highest operating standards and it offers features and performance not previously contemplated in the ITS market.

TIRTL has a speed measurement accuracy of 0.5% up to 250km/h and it precisely measures axle breaks and separations to classify vehicles. TIRTL operates with up to 9 lanes and has a vehicle count & classification accuracy of 98 to 99.9% with dense traffic on multi-lane roads. TIRTL can be configured with a custom vehicle classification scheme or use a standard scheme (AUSTROADS94 FHWA13, Indian, European or others). TIRTL operates from -40 to +85°C, it is IP67 rated and it is resistant to sunlight, rain, hail, fog, dust and dirt.

TIRTL has low power consumption and operates with fixed power, solar power or external batteries.

TIRTL has an Ethernet interface for network connectivity, a GPS unit for time synchronisation and a 3G/GPRS/ GSM modem to remotely connect with a control centre for real time and statistical logging applications.

TIRTL has an RS232 port to connect to other ITS equipment or a laptop/PC interface for installation, setup, maintenance, operation and file transfers. TIRTL supports ASCII protocol and it can be connected to a speed camera, VMS, WIM controller, over-height controller and a broad variety of ITS systems. TIRTL is installed off the main carriageway which eliminates lane closures and the risk of accidents. Its non-invasive operation reduces installation time and operating costs and road maintenance repair costs. It is easily installed in permanent or portable applications and it is hidden from passing traffic.

TIRTL can be used for traffic data collection, incident detection, speed and red-light enforcement (with a camera), toll audit, heavy vehicle enforcement, over-height & over-length vehicle detection, busway enforcement, train monitoring and numerous other applications. TIRTL has features that makes it one of the most flexible ITS products in the world.

## Applications

- Advanced traffic detection including vehicle counting, classification and speed measurement
- Speed and red-light enforcement (connected to a camera)
- Incident detection with TIRTLs installed at regular intervals (500m or 0.5mile) on a major road
- Toll audit to monitor the performance of a toll system
- · Heavy vehicle enforcement
- Over-height and over-length vehicle detection
- Bus-way lane enforcement
- Train monitoring including direction, speed and length
- Traffic monitoring for real-time applications
- WIM support providing vehicle count and classification data, communications and data logging

### Features

- Infra-red light detection system (non-invasive)
- Vehicle classification based on axle counts and separation with pre-defined and user-defined classes
- Speed measurement based on parallel beam breaks
- Lane identification based on parallel & cross beam breaks
- Traffic data including count, class, speed, direction, lane, headway, gap, occupancy, date & time and other fields
- Flexible TIRTLsoft graphical user interface operating on Windows and providing real-time access, automatic traffic log retrieval and TIRTL configuration
- Fast and easy to install as a portable or permanent unit
- Operates with fixed power, solar power or batteries
- External enclosure for permanent installations

#### **Performance and Rating**

- Vehicle speed measurement accuracy: 0.5% up to 250km/h (NATA certified for speed enforcement)
- Uni-directional, bi-directional & tidal flow traffic up to 9 lanes
- Vehicle count and classification accuracy: 98 to 99.9% with dense multi-lane traffic
- Power consumption: Tx: 640mW, Rx: 2500mW average
- Transmitter/Receiver separation distance up to 200m
- Powerful computer and Gigabyte memory (30M+ vehicles)
- Operating temperature range: -40 to +85°C
- Environmental rating: IP67 (dust and water proof)
- Resistant to sunlight, rain, hail, dust, fog and dirt build-up
- Robust enclosure resistant against shock and vibration
- Standards compliance: C-tick, CE, FCC, EMC/EMI & others

#### **Power Supply**

- Battery powered with external 12V battery: 1 to 2 weeks
- External fixed power input: 10-20V DC
- Secondary battery system with AC-DC converter & charger
- Solar power: 40W (transmitter) and 60W (receiver)

#### Interface and Communications

- RS232 serial port to connect with other ITS products and/or a laptop for installation, maintenance and data retrieval
- Internal 3G/GPRS/GSM module with antenna
- Internal GPS module with antenna for time synchronisation and positioning
- 10/100BASE-T Ethernet interface



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