

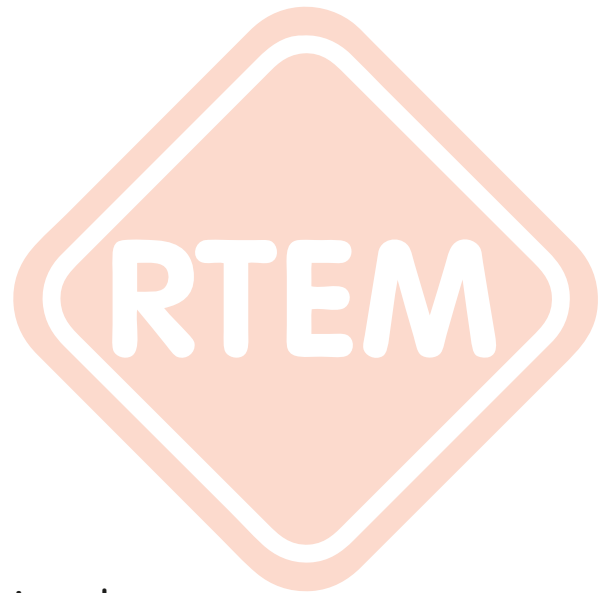


# Road Traffic Equipment Manufacturers

App-driven multi-purpose intelligent loop detector platform



**SP4 Signature-Profiling  
Loop Classifier Platform**



- **Loop Signature Profiling**
  - **Store up to 50 Million Vehicle Records**
  - **Integrated Journey Time Monitoring**
  - **Activate Warning Signs**
  - **Low / Solar Powered Operation**
  - **Fast USB / CF card Data Retrieval**
  - **GSM / GPRS data Telemetry**
  - **License-free Apps & Software**
  - **Data compatible with popular analysis packages**
  - **Interface to UTC / UTMC Systems**

### **SP4 Signature-Profiling Loop Classifier Platform**

A unique development in the design and operation of loop classification equipment. The SP4 operates as a software platform – much as a smart-phone does – with interchangeable firmware “Apps” allowing the SP4 to perform the function of half a dozen different devices.

The SP4 Platform is designed to squeeze additional value from existing infrastructure and facilitate joined-up working between Local Highway Authority traffic data collection, road safety, environmental monitoring and traffic management / UTMC teams. It is also fully supported for use by:

- DBFO management companies
- Car park / retail park operators
- ITS system designers / integrators
- Traffic survey companies
- Development monitoring condition compliance

### **Key Features:**

Today's SP4 builds on the success of this platform in the field over the last five years.

- Connects to up to 4 inductive loops
- Multiple units can be networked to operate as master/slave(s)
- Tolerant of a wide variance in loop specification and quality
- Records vehicle-by-vehicle data (up to 53 million vehicles)
- Integrated Bluetooth (TM) device detector for journey time / origin & destination monitoring
- Output switch for integration with external devices
- Removable flash memory card
- USB Engineers' interface to PC / Android tablet
- Low power – battery only, solar and mains operation
- GSM / GPRS telemetry options
- Compatible with ADSL / Ethernet / RS485 communications
- Data formats compatible with industry standard analysis packages and UTMC databases

### **“Apps”**

#### **Single Loop Classification**

The **slp** firmware App is designed for the collection of fully classified vehicle data (length, speed, class, gap) from a single inductive loop in each traffic lane. This allows much more useful data to be obtained from legacy “volumetric” count sites without the cost of upgrading the loop arrays. Each SP4 can connect to up to 4 traffic lanes using existing batteries and solar panels to minimise upgrade costs. Compatible with networking, SVDS, SCOOT, Bluetooth TM, all alerting & communications options.

#### **“Traditional” Dual Loop Classification**

The **modsig** firmware App is intended as a direct replacement for legacy counter / classifiers, using existing power supply if required. Each SP4 can monitor 2 traffic lanes – expandable to 14 lanes by networking multiple units. Offers automatic switching to single loop classification mode in the event of a loop failure, providing data continuity and flexibility in scheduling repairs. Compatible with SVDS, SCOOT, Bluetooth TM, incident detection and all communications options.

#### **Cycle Detection**

The **cycledet** firmware App allows the counting and classification of pedal cycles in dedicated cycle lanes on/off carriageway. It can be used with legacy inductive loops for volumetric counts or with chevron loops installed to RTM's specification for directional classification. Other objects such as prams and shopping trolleys are filtered out by pattern recognition algorithms. Up to 4 cycle loops can be monitored allowing recording on multiple paths or over very wide paths. Can be networked with SP4 units running slp and/or modsig Apps to provide full cycle and traffic data from the same site. Compatible with SVDS, Bluetooth TM, alerting and all communications options.



### Networking

Up to 7 SP4 units can be networked together either at the same site or within a 4km distance. Each SP4 can be configured separately and appropriately for the site using any of the Apps, but is then subsequently controlled through the “master” unit which stores all data and handles communications. This allows the flexibility to cover multi-lane sites without the need for specialist high-cost equipment, or to manage all the units along a road through a single communication channel. The RS485 connection can alternatively be used as a means of retrieving data from a single SP4.

### Selective Vehicle Detection System (SVDS)

The SP4's SVDS functionality allows the triggering of external devices by any combination of vehicle type, lane, direction of travel and/or speed. The external device can be physically or wirelessly connected. Alternatively, an SMS or email alert can be generated when the defined condition(s) are met. This allows the SP4 to be easily integrated into ITS projects, whilst still collecting classified data on all passing traffic. Common applications of SVDS are for triggering Vehicle Activated Signs where more than just vehicle presence and speed are required to trigger the sign or bus detection at traffic signal controlled intersections.

### SCOOT

Although some traffic count data can be collected from standard traffic signal loop detectors, this has typically been found to be of low accuracy compared with traditional automatic traffic count sites and was in any case only volumetric. SP4 units can be used to replace existing detector cards. Each SP4 can be connected to a SCOOT loop and provide standard SCOOT output to the signal controller whilst collecting fully classified data for all passing traffic. Data can be retrieved remotely by use of a modem or by using existing communications infrastructure in the controller cabinet. This functionality may mean separate automatic traffic count sites no longer have to be maintained, reducing overheads, staff time and the total number of loops required in the road.

### Incident Detection

The SP4 can run incident detection algorithms to Highways Agency MIDAS standards. This includes queue detection and speed / flow alarm parameters. As with SVDS, external devices can be triggered or alerts produced. Bespoke Apps can be produced for queue detection or speed/flow alarms for standalone projects (eg safety schemes where problems have been identified).

### BlueTooth™

New to the SP4 platform is the integrated BlueTooth™ detector designed into every unit. The benefits of mass-production, bring down the cost of this added functionality. The detector allows the collection of unique MAC addresses from BlueTooth™ equipped devices carried in passing vehicles. Matching of the time-stamped MAC addresses allows journey time monitoring and origin/destination studies to be carried out between any sites containing SP4 units (and with any other sites equipped with alternative BlueTooth™ data collection devices). The SP4's existing power source and communications channel can be used to collect and retrieve combined traffic and MAC address data. The impressive on-board data storage even allows for manual data collection if required.



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### Technical Specification:

<b>Weight:</b>	0.5kg
<b>Dimensions:</b>	170mm x 150mm x 40mm
<b>File Storage:</b>	FAT 16 (Windows compatible)
<b>Memory card type:</b>	Compact Flash (CF). Size 512MB – 8GB
<b>Voltage:</b>	4-18v DC
<b>Power Consumption:</b>	100mW
<b>Operating Temperature Range:</b>	-20°C to +70°C
<b>Environmental Protection:</b>	IP64 (IP65 if using pre-wired enclosure)
<b>Firmware:</b>	Flash upgradeable by user
<b>Ports:</b>	USB comms, RS232 comms/modem, RS485 network
<b>Data Retrieval Methods:</b>	Direct USB connection with PC / Tablet Removal of CF card GSM “dial-up” telemetry GPRS telemetry ADSL connection Ethernet connection RS485 network connection
<b>Length Classification Accuracy:</b>	+/-3% with 95% confidence
<b>Speed Classification Accuracy:</b>	+/-3% (typically +/-1mph)
<b>Vehicle Type Classification Accuracy (Euro6):</b>	Pedal cycles: >95% Motorbikes: >95% Cars / Light Goods Vehicles: >98% Cars/LGVs with trailer: >90% Lorries: >95% HGVs: >95% Buses / Coaches: >95%
<b>Supported Vehicle Classification Schemes:</b>	With 95% confidence, based on typical loop array. DoENI5, Euro6 User Definable Class Schemes (up to 24 vehicle types)