



ADVANCED TRAFFIC TECHNOLOGY
COUNTS, SEPARATES & CLASSIFIES IN **ALL** CONDITIONS

Technical Sheet No. 2

Idris®

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AUTOMATIC VEHICLE CLASSIFICATION

USING Idris TECHNOLOGY FOR VEHICLE CLASSIFICATION

Idris uses inductive vehicle signatures to achieve its phenomenal detection accuracy. These vehicle signatures are also used to provide classification. Field experience has proved accurate vehicle classification of a wide range of vehicles including motorcycles, cars, pickups, trucks and commercial vehicles with three or more axles, consistently in all weather and traffic conditions. These classification results have been achieved while dealing with various live traffic situations, from total congestion (stop/start) through to free flow. Idris still produces accurate vehicle class and length even when a vehicle has been stopped over the loops for a period of time. The base vehicle classes produced using Idris are obtained using a standard 2 loop per lane installation.

The Idris class tables are defined in configuration files and are easily modified to suit customer requirements allowing tailor made classification criteria.

Idris profile classification is used in a number of applications including data recording and tolling.

Idris has the ability to record the raw profile data for subsequent analysis to allow for adjustments to the classification tables.

Idris & AXLE DETECTION

In 1998, with the benefit of a UK government grant, Idris was developed to incorporate axle detection. Introducing axle counting into the automatic vehicle classification (AVC) system enables further breakdown and classification of vehicle types providing more accurate information on road usage and the ability to levy appropriately proportionate toll charges. Axle based charging is the preferred method of charging for the US toll industry. The development of the Idris patented axle loops has assisted in generating the only single technology capable of vehicle detection and axle based classification for all road configurations from single lane tolling through to multi-lane highways. All competing systems require multiple sensors, for example, overhead separators, light curtains, treadles and piezos, each with their own inherent disadvantages and all requiring a complex integration capability within the relevant processing environment.

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When axle detection is used an axle loop array is situated between two Idris main loops and the inductive signatures from both the main and axle loops are analysed after each vehicle passes over the detection site to produce a per vehicle record (pvr). This information is then used to determine the classification of each vehicle. The presence of an axle is detected by the axle loop array and its position in the vehicle is determined using information from the main loop signatures. Using the standard Idris axle array the number of axles can be determined irrespective of the vehicle and axle construction. In certain combinations it is possible to determine the axle makeup, i.e. the number of wheels or tyres per axle as well as detecting raised axles. The ability to extract axle information is independent of speed and the system operates from 0 to greater than 100mph (160kph), i.e. from congestion including stop and go traffic through to free flow.

The exact configuration of the axle loops is dependent upon the application required; i.e. tolling or data recording. Tolling applications are typically looking for detection count accuracies in excess of 99.9% with commensurate classification accuracy and require additional axle sensors. Data recording requires classification accuracies in the order of 99% due to the aggregate nature of the data analysis and can use a reduced axle sensor.

Irrespective of weather conditions, in both live test and traffic environments, the Idris axle detection technology consistently achieves the accuracies required by both data recording and tolling agencies.

Idris can use existing infrastructure if suitable main loops are available. Idris is environmentally friendly as there are no overhead or roadside structures required, which is a major factor in today's society.

Idris technology provides toll operators with multiple benefits, including highly accurate classification, competitive initial costs, low maintenance costs and a long life span creating the ideal solution for today's tolling industry.

Idris also provides road agencies with the ability to collect data for traffic analysis in areas where valid data could hitherto not be collected, for example areas with recurring congestion. Idris as the detection technology for automatic data recorders has the following key benefits:

- Axle detection from loops only, no piezos to fail.
- Continues to collect valid data even in total congestion.
- Operates in all weather conditions including fog and snow.

The Idris Technology is protected by one or more of the following patents:

EP0879457, USA 6345228, 6337640 and 6483443

Patent Applications Pending in other Countries

Idris® is a registered trademark of Diamond Consulting Services Ltd.

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