M680 Vehicle Count and Classifier

Accurate, reliable & flexible with impressive download rates & rapid response times
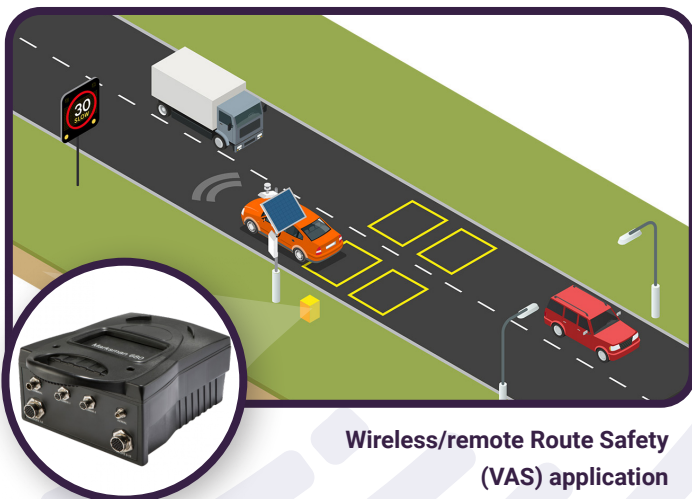
The M680 Vehicle Count and Classifier device is a proven Automatic Traffic Counter (ATC) solution designed to help reduce traffic congestion and improve traffic safety through the delivery of accurate and reliable data. It allows precise traffic data collection on multiple-lane roads utilising inductive loop and piezo sensor technologies, helping road authorities to overcome the vehicle count and classify challenges that come with the increasing volume of vehicles on the road.

As the volume of traffic on the road continues to increase, being able to count and classify vehicles has become more critical to government, and traffic authorities. The data collected by count and classify devices helps traffic managers to identify which routes are used most, and which class of vehicle uses which road, this helps to inform decision making on road improvements, layouts, safety, guidance etc.

With total flexibility, the M680 Vehicle Count and Classifier system can monitor up to eight traffic lanes with programmable vehicle categorisations with both piezo sensors and inductive loops. Rapidly scanning each loop and piezo sensor, the M680 can report vehicle counts, class, direction, speed, lengths, axles, axle spacing and gap/headway in each lane.

Wireless/remote Route Safety (VAS) application

Key Benefits

- Classify and count vehicle types with superior capture accuracy

- Monitor up to eight lanes

- Rugged and reliable device that can be deployed in the harshest of environments

- Reduced installation and maintenance costs through the use of solar power

- Obtain traffic data in real-time or for future comprehensive reporting

- Cost effective monitoring through remote management and data collection

- Straightforward, improved decision-making is enabled by Insight Smart Mobility Platform connectivity or through the provision of data to a third party platform

- Generate reports in real time for traffic studies

- Identify annual and seasonal traffic trends

- Analyse the impact of heavy traffic flow on infrastructure

The M680 offers unparalleled flexibility from a single platform

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Traditionally, applications have relied on binned data being collected on a weekly or monthly basis for historical purposes.

With current demands for maximising the efficiency of the existing road infrastructure, the M680 can collect data on each vehicle for scheduled, manual or real-time delivery over packet-based communications. Conventional interval data can also be collected simultaneously for historical analysis. Both data types can be used with Insight's comprehensive reporting and analytical tools.

As the loop detectors are integrated and controlled by a single processor, advanced algorithms are available to detect straddling vehicles and minimise data inaccuracy due to traffic congestion. Achieving similar levels of performance in the past has required N+1 configurations. Whilst the M680 Vehicle Count and Classifier can accommodate legacy 'N+1' sites, it provides greater accuracy with just 'N' arrays, reducing installation and maintenance costs.

The M680 benefits from over 30 years of experience with roadside systems operating in all types of weather conditions. Our systems last for many years due to their rugged, robust construction. Installing and maintaining the M680 is hassle-free due to their easily accessible batteries, military grade connectors, and SIM cards.

With over 30 pre-defined axle and loop classification schemes including the 26-class UKNCC30, the M680 can detect and classify a wide range of vehicle types from bicycles through to semi-trailer trucks.

Key Features

- Latest generation inductive loop-based vehicle count/classifier

- A comprehensive range of configuration, connectivity and additional interface options

- Provides real-time and historic data are simultaneously

- Extremely low power consumption

- Accurate vehicle algorithms to cater for vehicles straddling lanes

- User friendly configuration and management application

- Cellular (4G/2G) communication options for remote data collection

- Can be battery, mains or solar powered

The M680 can detect and classify a wide range of vehicle types from bicycles through to **semi trucks**.

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Application examples

With unsurpassed accuracy, reliability and versatility, the M680 system can be used in both slow and fast moving traffic environments, making it perfect for both parking and general traffic applications.

Counting and classification to analyse road usage

The M680 system acts as a reliable solution to count the number of vehicles and classify them in the selected class scheme. A single device can cover up to 8 lanes, enabling the client to understand valuable usage trends and driver behaviour. Our Insight Smart Mobility Platform enables and makes it easier for the user to run reports based on different scenarios.

Remote Route Safety VAS Warning System

Deploying our M680 system along with Vehicle Activated Signs (VAS) can provide an effective solution to road safety issues at hazardous junctions or on rural roads. The dual use of the VAS can also warn drivers that they are travelling too fast. In rural locations, where the access to mains power is restricted or limited, two solar panels can be installed; one to power the M680 Vehicle Count and Classification system and another to power the VAS.

Combining vehicle activated and fixed messages in this way provides clear guidance to drivers on potential hazards on the road ahead. Tailoring the warnings to the situation on the road that the driver is experiencing at that very moment significantly increases the effectiveness of the warnings, ensuring drivers don't become complacent, adhere to the speed limit, and approach the junction with caution.
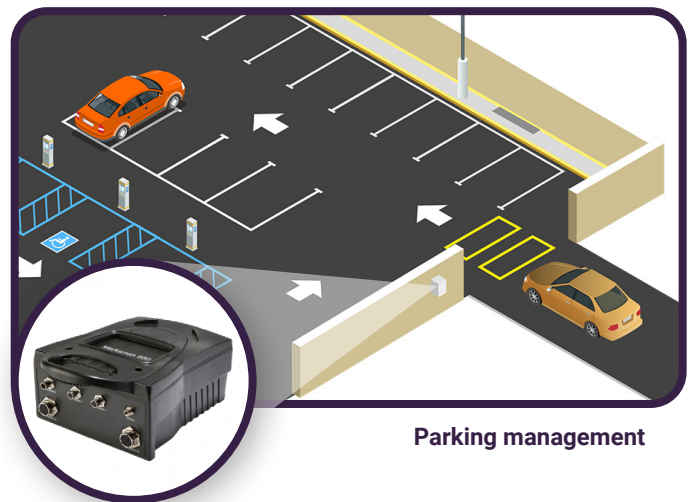
Parking management

The M680 system can act as a reliable solution for counting the number of vehicles entering and exiting car parks and provide a management overview on space availability per site. The combination of M680 Vehicle Count and Classification and our integrated Insight Parking application to gather parking data, that can be fed to parking apps, can provide car park managers and customers with live space availability across the car park network. The M680 counters supply the car park flow data to the Insight platform, which allows operators to conduct real-time and historical trend analysis of car park utilisation.

This solution has brought much needed visibility to station car park operations and helps to inform future investment decisions about additional parking provision. Enabling passengers to find out current parking availability prior to leaving home has meant they can effectively plan their journeys to and from the station, resulting in more efficient car park use.

Weight Restriction Monitoring System

In areas where there are weak bridges and structures, you may also find enforced weight restrictions. Local councils may also enforce weight restrictions to bar heavy vehicles from areas unsuitable for their size or if they pose a danger, for example, narrow village roads, adjoining schools. Unfortunately these are often ignored by HGV drivers. Implementing the M680 counter and VAS solution can play a key role in warning these vehicles of the upcoming restriction. The M680 counter classifies the type of vehicle approaching, and if it is overweight, for example, the VAS is triggered, showing the oncoming driver a highly visible and immediate reminder that they are not permitted to cross / pass due to the size or weight of their vehicle.

Parking management

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Machine Learning Loop Detector

The Machine Learning Loop Detector (MLLD) is the next generation of M680 loop card designed to improve the accuracy of individual class types within a class scheme. By utilising a combination of Machine Learning techniques and the latest designs in loop card hardware, the MLLD card can more accurately identify classes with similar characteristics. Machine Learning is used to create a specific class scheme algorithm for the MLLD. This is achieved by using hundreds of validated vehicle data samples to train the algorithm to recognise each individual vehicle type.

MLLD can provide a cost-effective option to deploying Piezo sensors where the requirement is to classify similar vehicle types and axle counts are not required. Existing M680's can be upgraded with MLLD cards, maximising infrastructure investment.

Switch I/O card

The M680 offers an optional Switch I/O card with 8 input/ output ports providing a level of flexibility not found in similar solutions. The Switch I/O card can be used to control external devices such as variable messaging signs, ANPR cameras, barriers and gates, or any device that accepts contact closure input. The piezo and loop sensors both enable the Switch I/O card to generate outputs on speed, class, and direction. The piezo card also provides outputs based on axle counts and separation. Loop sensors offer additional outputs including flow and speed threshold algorithms and detecting the presence of vehicles on a loop. Conditions can be combined using logical operators to create more complex rules providing a high level of flexibility.
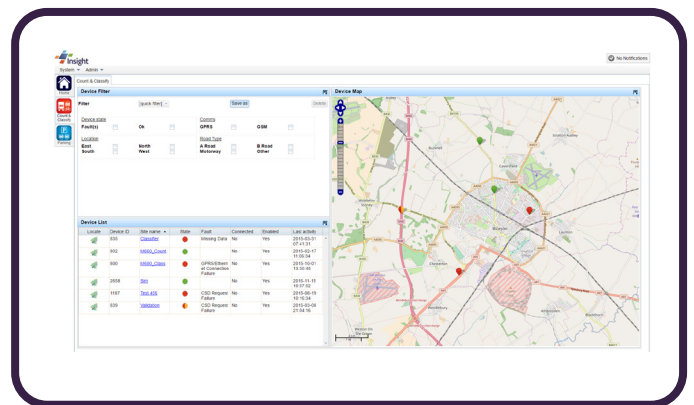
Piezo card

The 8 and 16 port piezo sensor card offers full axle detection using Mk1, Mk2 and Mk3 sensors providing accurate, robust and reliable detection and classification. The M680 includes 15 axle-based classification schemes ensuring quick deployment and operation. The piezo card can operate in piezo–piezo only configurations but it is further enhanced when combined with the HPLD loop card for loop–piezo combinations.

Insight

Insight is our Smart Mobility platform and provides a suite of applications for the monitoring, management, reporting and analysis of multi-modal transport systems and associated environments. Utilising data from a variety of sources, including IoT Sensors and API Services, Insight can be used standalone or as part of a Smart Cities platform.

Options and Accessories

- 4, 8, 16 Inductive Loop card
- 8, 16 Piezo Sensor card
- Switch I/O card
- Serial port option
- Battery Charger
- Bluetooth adaptor

- HPLD Loop card for enhanced accuracy and/or 200m feeders
- Central Insight instation software for data retrieval, device status, live diagnostics and reporting
- Windows based graphical configuration interface

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