



XL-Vehicle Actuation Traffic Pattern Generator

Simulators for Loop, Axle and WIM actuation

Loop and Piezo Actuation Simulator



This simple device provides vehicle detector actuation through changing the ‘tuned’ inductance connected to a vehicle loop detector or inducing a variation that simulates a PIEZO response when pressure via wheels is applied. Changing the inductance or PIEZO simulation is an electrical activity comparable to the effect of a vehicle passing over a tuned in-pavement loop or in-pavement PIEZO.



Application: This device replaces the need for ‘waving’ a piece of metal over a coil connected to a loop detector and or applying pressure to a PIEZO strip in order to generate an actuation. This enables observation of operation and extended unattended testing which can be monitored historically.

Single Incident Detection Outstation Vehicle Pattern Simulator – Loop and PIEZO (axle simulation).

The Detector Vehicle Pattern Stimulator is used to simulate vehicles for a paired loop vehicle detector up to 8 channels (4 loop pairs) or 16 channels (8 loop pairs). The user may select to activate single loops or paired loops in fixed patterns or configure parameters such as vehicle speed, length and flow rate can be changed to recreate various traffic conditions. Settings for loop length and spacing are adjustable to match a particular physical site. Thus the DVS can be used to evaluate the performance of a vehicle detection system by simulating a range of traffic conditions. The simulation can be configured by the user to provide a controlled traffic pattern which includes vehicle speeds and vehicle lengths.



Application: Single outstation evaluation of configurable vehicle patterns. Useful for debugging and testing control processing software and communication networks.

Multi-station Incident Detection Outstation Vehicle Pattern Simulator

This PC based MID vehicle simulator and stimulator program controls a network of vehicle simulator cards which provide progressive vehicle patterns that indicate vehicles moving progressively through a number of detector outstations. Parameters associated with the distances between outstations and vehicle flow and speed data provide a useful tool for examining closed systems such as tunnels. This product was developed to debug and verify operation of the traffic management system in the Jack Lynch Tunnel, Ireland.



Application: Testing a network of vehicle outstations through analysis of predicted traffic patterns and the introduction of simulated incidents.



Functions – Operator Selection Single Site Simulation

- Stop / Start – Starts and stops the simulation (Right: Stop, Left: Start)
- Continuous / Fixed – Chooses between a fixed simulation length, or continuous. In fixed mode the system will stop after 100 vehicles per lane have been simulated. Another 100 vehicles can be created by toggling the Start / Stop switch to stop then start again. (Right: Continuous, Left: Fixed)
- Forward / Reverse – Changes the direction of the simulated vehicles. That is, ‘forward’ simulates loop 1 then loop 2, ‘reverse’ is loop 2, then loop 1. (Right: Forward, Left: Reverse)
- Dynamic / Preset – Chooses between the user specified vehicle parameters (dynamic) or a fixed set of parameters (preset). The user parameters are set via the Setup Port, and are stored in non-volatile memory on the board. Therefore, they are retained through power cycles (Right: Dynamic, Left: Preset)

Traffic Pattern Parameters

The preset parameters are as follows:

- Loop Spacing – 5000 mm
- Loop Length – 1500 mm
- Flow Rate – 2000 vehicles per hour
- Vehicle Speed – 100 km per hour
- Vehicle Length – 50 dec mt

The ‘dynamic’ parameters are as follows:

Lane Spacing - 5000 mm

Loop Length - 1500 dm

Flow Rate - 2000 vehicles per hour

Slot 0: Speed - 100 km/h (period-180 ms)	Length - 50 dm (period 234 ms)
Slot 1: Speed - 100 km/h (period 180 ms),	Length - 50 dm (period 234 ms)
Slot 2: Speed - 100 km/h (period 180 ms),	Length - 50 dm (period 234 ms)
Slot 3: Speed - 80 km/h (period 225 ms),	Length - 100 dm (period 517 ms)
Slot 4: Speed - 80 km/h (period 225 ms),	Length - 100 dm (period 517 ms)
Slot 5: Speed - 80 km/h (period 225 ms),	Length - 100 dm (period 517 ms)
Slot 6: Speed - 80 km/h (period 225 ms),	Length - 100 dm (period 517 ms)
Slot 7: Speed - 120 km/h (period 150 ms),	Length - 40 dm (period 165 ms)
Slot 8: Speed - 120 km/h (period 150 ms),	Length - 40 dm (period 165 ms)
Slot 9: Speed - 120 km/h (period 150 ms),	Length - 40 dm (period 165 ms)

Period is calculated in respect to the user specified input – typically milliseconds

Options

- Simulation channels 8 or 16 to be configured as per user requirements
- Available in card format (insert into ETG chassis – slot 4 compatible)
- Available freestanding unit as per picture
- Cable and screw terminal strip available to suite other manufacturer’s products
- Cable interconnect pin-to-pin compatible with ETG loop detectors
- Loop and PIEZO stimulation (axle actuation)

Multi-station Incident Detection Outstation Vehicle Pattern Simulator

The MID (Multi-station Incident Detection) vehicle traffic pattern generator is a PC based program which provides progressive vehicle patterns that indicate vehicles moving progressively through a number of detector outstations. Parameters associated with the distances between outstations and vehicle flow and speed data provide a useful tool for examining closed systems such as tunnels.

Please contact Excel Technology Group for more information about this product.