

# 610 Loop Vehicle Detector

## Overview

The 610 Loop Vehicle Detector is an intelligent, extremely flexible and very affordable vehicle detector. The 610 is designed to accommodate numerous applications and intelligently adjust to environmental conditions, virtually eliminating false detection. The 610 is intended to connect to a 3-to-5 turn preformed or saw-cut loop such as the Marsh Products 865, 866 or 867. In addition the 610 provides a communications interface for the optional diagnostic software and the optional car timer.



## Characteristics

- Microprocessor controlled
- Low-voltage, low-energy consumption
- Small, compact size
- Three LED indicators (Power, Signal, Loop Fault)
- Four modes of operation
- Four programmable signal delays on arrival
- Four programmable signal delays on departure
- Four levels of sensitivity
- Automatic environmental tuning
- Contact relay output
- 0,1 sec., 2 sec., & 4 sec. delay times
- 9-20VDC or 9-16VAC power requirement
- Communications port for optional diagnostic software kit and optional car timer.

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## SPECIFICATIONS

### Power Requirements

The 610 Loop Vehicle Detector can be powered by either a 9-20VDC or 9-16VAC. The 610 is shipped with a UL approved Class 2 Plug-in the wall 12 VDC power adapter. However, the power can be supplied by any external device and connected via the screw terminals provided inside the enclosure.

### Enclosure

The housing is constructed of durable black ABS plastic. Legend art is printed on the cover to clearly identify the connection points and the LEDs. The case provides two mounting tabs for use with the provided hardware. In addition the 610 is also shipped with velcro mounting strips for an alternative mounting method.

### Communications Port

An RS485 communications port is standard with the 610 vehicle detector. The communications port interfaces with the optional diagnostic software kit or the car timer option.

### Diagnostic Software Kit - (Optional)

The diagnostic software kit connects to the 610 detector via the communications port. Using the diagnostic software on a standard PC or notebook computer the loop frequency shifts and vehicle effects are graphically displayed on the PC to aid in determining installation problems.

### Car Timer Kit - (Optional)

The car timer kit consists of a large 4 character LED display and PC software to create a powerful and cost effective car timer. The car timer can be stand alone or can be connected to a personal computer for data recording and report generation.

### Modes of Operation

The type of output signal can be programmed to one of four possibilities:

- Constant signal on detection
- Pulse on vehicle arrival
- Pulse on vehicle departure
- Pulse on arrival and departure

### Environmental Tuning

The 610 is operational within 3 seconds of applied power. As environmental conditions slowly affect the loop frequency, the 610 detector follows the change, recording the change every half second. However, vehicle presence is never tuned out. Hold time is infinite on the detection of a vehicle. If a large metal mass were to affect the loop and create a detection, the next vehicle would correct the presence signal when it departs. In essence, the detector is self-correcting.

### Signal Delay on Arrival

One of four delay periods can be programmed. The programmed time delay is the length of time from the detection of a vehicle to the actual output of the signal.

### Solid State Switch Signal Output

Open collector NPN transistor output. Protected from over voltage by a shunt 1N5258B 36 volt zener diode. Presence signal is capable of sinking 50 milliamps.

### Signal Delay on Departure

One of four delay periods can be programmed. The programmed time delay is the length of time between the departure of a vehicle to the absence of the output signal. For example, if a 1 second delay is selected, the output signal will drop 1 second after the vehicle is no longer detected.

### Loop Fault

When a loop fault occurs, the red LED is lit and signal outputs go to a presence state. Loop faults are triggered when the loop frequency falls below 20 kilohertz or rises above 75 kilohertz, indicating a loop open or short, respectively.

### Relay Signal Output

The 610 Vehicle Detector supplies a 2 amp form-c contact relay output in addition to the solid state switch signal output.

### Grounded Loop Operation

The loop isolation transformer allows operation with loops grounded at a single point.

### Lightning Protection

The loop input is protected by a series pair of 1N5235B 6.8 volt in series shunt (across) the loop input terminal.

### Internal Circuitry Isolation

The loop is isolated through the loop isolation transformer.

### Current Draw

Maximum: 25 milliamps

### Loop Inductance

30-1,000 microhenries with Q factor of five or greater.

### Operating Temperature

-40 F to + 180 F

### Programmable Sensitivity

The sensitivity can be set to one of four possibilities.