



VEHICLE DETECTOR

Model LD-20 Series

Advanced Design - The Model LD 20 Series

The Federal APD Vehicle Detector, Model LD-20 offers you a “smart” detector for automatic barrier gates, count panels and traffic controllers. The microprocessor-based inductive loop vehicle detectors offer a variety of specialized features designed to work with the latest parking and security technology.

Typical Installation:

The Model LD-20 Series Vehicle Detector is used to control and count vehicles entering or leaving a traffic lane. The device may be used to vend ticket dispensers, activate barrier gates, arm fee computers, or operate counting devices.

Components:

- LD-20 Series Vehicle Detector
- Detector Harness
- Embedded loop of 16 AWG wire
- Automatic parking or traffic control device

Features:

- Dual channel inductance loop detectors with complete self-tuning capabilities
- LED indicators provide operational status/diagnostics of each loop's:
 - Tuning • Presence
 - Sensitivity Mode
- Sensitivity tailgate recognition system capable of detecting two separate vehicles traveling over a loop simultaneously within six inches of each other
- Manual reset switch
- User-selectable settings include
 - Loop Frequency (high, medium, low) • Sensitivity • Tailgate Detector
- Loop transformer protects against lightning-induced power surges
- Internal RFI filter reduces electronic 'noise'
- Five specialized models

Model LD-20

Two Channel Pulse and Presence Outputs. The Model LD-20 contains two channel pulse and presence outputs for optimal performance and accurate counts. The LD-20 has been designed to give you the most accurate vehicle counts possible.

Model LD-21

Two Channel Pulse and Presence Outputs, plus Directional Pulse Outputs. In addition to two channel pulse and presence outputs, the Model LD-21 offers directional logic. This directional logic provides an AB-BA pulsed output which automatically determines vehicle direction. The LD-21 also generates a reverse count if the vehicle backs out of the lane.

Model LD-22

Directional Logic with Outputs for both Directional Pulse and Presence. The Model LD-22 incorporates an AB-BA logic package which provides outputs for directional pulse and presence. Also, the LD-22 provides reverse violation pulsed outputs.

Model LD-23

Dual Directional Pulse and Presence outputs. The feature-packed LD-23 provides an AB-BA pulsed output as well as separate presence contacts from each detector. With the LD-23, the directional pulse does not occur until the vehicle leaves the B loop in a forward direction - or the A loop in a reverse direction.

Model LD-24

Dual Directional Pulse and Presence Outputs. The LD-24 provides an AB - BA pulsed output as well as a separate AB - BA presence output. The A - B presence is however, not deactivated until the vehicle clears detector loop B having already cleared detector loop A. This is also true in the reverse directional in the B - A presence is not detected until the vehicle has cleared the detector loop A, after clearing Loop B. Accurate counting and direction of traffic is maintained using the LD-24.



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VEHICLE DETECTOR LD-20 SERIES

1. Purpose

The Federal APD Model LD-20 Series Vehicle Detectors will be a vehicle detection device for use in a parking facility. The dual channel detector will detect the presence or transit of a vehicle over an embedded loop of wire. This loop of wire will produce a magnetic field which is charged by the presence of a vehicle. The vehicle detector will detect the change in the inductance and generate an electrical signal to operate other control equipment.

2. Features and Functions

The Model LD-20 Series Vehicle Detector will be able to make adjustments for environmental changes, such as loop aging, moisture, mechanical deterioration, and foreign particles in the loop.

The Model LD-20 Series Vehicle Detector will be housed in an 18 gauge, brushed aluminum enclosure. The device will contain two fully separate vehicle loop detectors and directional logic circuitry. All connectors to the detectors will be made through a heavy-duty military specification (MS) connector supplied for each of the two detectors. The MS connector will be mounted in the two detectors.

This type of connector ensures a weatherproof, mechanically solid connection between the detector and peripheral equipment. User controls will also be mounted on the front of the detector enclosure in the form of eight dual in-line package (DIP) switches mounted in a single 16-pin DIP arrangement.

These switches will provide the following features for each detector. Reset (one DIP switch),

3. Dimensions

The Model LD-20 Series Vehicle Detector will be: 7-3/4 inches L x 6-3/4 inches H x 2 inches W (197mm L x 171 mm H x 50mm W), excluding switches and connector.

4. Indicator Lights

There will be eight (8) indicator lights in the form of red light emitting diodes (LED's). These shall provide the following information for each detector: Presence (one LED), Detector In-Tune (one LED), and Sensitivity Mode (two LED's). A separate red LED indicator light will show that a proper power supply voltage is being generated.

5. Tuning

The Federal APD Model LD-20 Series Vehicle Detectors will be fully micro-processor based, providing two separate, self-tuning loop detectors. Each detector will have the capability to continuously re-tune itself to its loop frequency during non-detect periods. This will prevent the detector from generating a false detect output due to frequency variances caused by environmental effects or other factors.

6. Operation

The Model LD-20 Series Vehicle Detectors will each have the capability of generating two loop frequencies via a front end DIP switch. No two frequencies will be the same. This will minimize the possibility of detector crosstalk or interference between two detectors generating an identical frequency.

Loop wire will be either #16 AWG THHN or TFFN standard wire. The Federal APD Model LD-20 Series Vehicle Detector will incorporate a Tailgate Recognition System capable of distinguishing two vehicles within six inches (152mm) of each other on a standard 2.5 x 6 ft. (.8 x 1.8 m) loop. Detectors without this capability will not be acceptable as they will not provide the required outputs for each vehicle passing over the loop. Parking systems using detectors without tailgate recognition cause vehicles to go undetected and vehicle counts to be inaccurate. Federal APD Model LD-20 Series Vehicle Detectors will each be capable of operating in three separate sensitivity modes: high, medium and low. Different sensitivity settings will allow vehicles of varying height and size to be properly detected.

7. Power Supply

The Model LD-20 Series Vehicle Detectors have a fully regulated internal power supply with RFI filtering allowing it to operate within an electrically noisy environment typically found in parking systems. The detector will resist lighting induced power surges on the detector loop by using a loop transformer between the loop and the loop circuitry, along with zener diode and neon protection. Power feed will be 110 VAC/60 Hz and a 5 Amp feed to detector enclosure will be provided.



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