
Single Channel Loop Detector

Specification

(Version 1.00)



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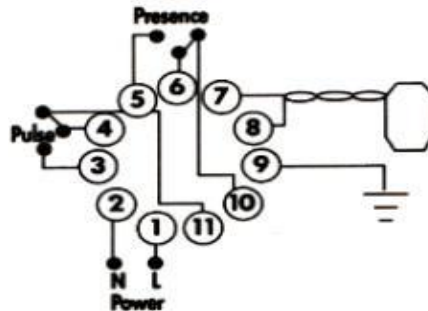
1. Application

Loop detectors are used wherever vehicles have to be detected. Like monitoring and safe guarding access ways to counting vehicles. The output signal can be used for controlling door and gate drive mechanisms, operating barriers, controlling traffic light systems in car parks or activating card dispensers in car parks.

2. Technical Data

- Supply voltage: 230V AC , 115V AC, 24V DC/AC, 12V DC/AC
- (See the label on the detector)
- Voltage tolerance AC: +10% / -15%
- Voltage tolerance DC: ±15%
- Power Consumption: ≥5VA
- Output relays: 240V/5A AC
- Frequency range: 20 kHz to 170 kHz
- Reaction time: 10ms
- Signal holding time: Unlimited / limited when loop is permanently covered
10 minutes
- Sensitivity: adjustable in 8 increments
- Wiring: 50μH and 300μH. Ideal is 150μH
- Loop connection wiring: Maximum length 200 meters,
twisted at least 20 times per meter
- Autocorrecting time: 1 to 2 seconds
- Operating temperature: -20°C to +65°C
- Storage temperature: -40°C to +85°C
- Dimensions (include pedestal): 78x40x108 mm (L x W x H)
- Net Weight (include pedestal) : 265g
- Specific set the table below. In trial runs, first sensitivity in the lower stalls, the actual test vehicle detection if no response should be an increased sensitivity to stall, so repeated several times until the car seized stability for normal work.

3 Wiring Diagram

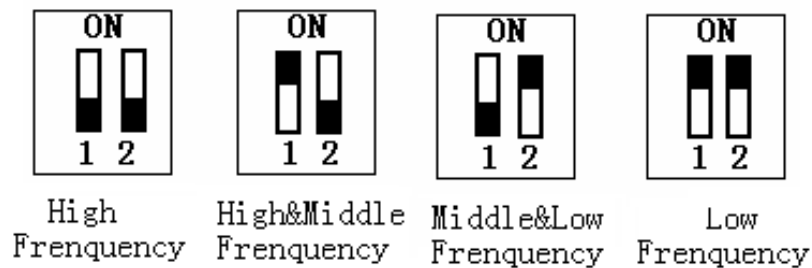


4 Use and operational

On power the vehicle loop will automatic correction. It will last 1 second, when correction , on screen 2 LED shows Do not leaving car on the loop when it correction .If successful ,the screen “check” LED turn off., The screen “check” LED turn on and the relay will action When car through. If fail check loop, the LED blinking at 1Hz.

4.1 Frequency adjust

To avoid Crosstalk, please to select different frequencies and screened cables. There are 4 opt frequency .The can be altered by means of DIP1, DIP2Switch.



4.2 Sensitivity adjust

The sensitivity can be adjusted on the front of the housing by means of a DIP3、 DIP4、 DIP5 sliding switch. Specific set the table below. In trial runs, first sensitivity in the lower stalls, After the actual if test vehicle detection no response should be increased sensitivity to stall, so repeated several times until the detector stability for normal work.



Low
→
 high

4.3 Filter option

When the environment is larger electromagnetic disturbance, resulting in frequent detector misoperation, turn the DIP6 switch on to increasing the filter coefficient, filtering disturbance. Please note that when the environment normal turn DIP6 on position. The may reduce detector sensitivity detection or increase the delay time.

Note: If the loop parameters lay unreasonable it may also lead to frequent detector misoperation. These loop parameters should be amended or re-buried loop.

4.4 Function output relay

*Pin5, pin 6, pin10: relay pulse output .It can be altered by means of DIP7-Switch

ON when car entry loop, the pin5, pin6 close conduction after 500ms switch-off.

OFF when car away loop, the pin5, pin6 close conduction after 500ms switch-off.

*pin3, pin4, pin11: relay existence output. When the loop is occupied by the car or metal, the Pin3, pin 4 close conduction until the car away loop. The duration decided by DIP8

4.5 Duration output time setting

The duration output time setting can be programmed by means of DIP8-Switch.

ON unlimited duration output (when car passing by loops, Duration output last all long

OFF limited duration output time:10 seconds (when overtime10seconds the car pass by loops, vehicle will New Calibration/Reset .

4.6 Reset

When power on detector, or pressing the reset panel buttons, or in limited duration mode over time there will detector reset operation. After reset, the detector will be initialized for a car-free state.

5. Operating Guide

The detector must be installed in a convenient weatherproof location as close to the loop as possible.

WARNING:

- 1) This unit must be earthed.
- 2) Installation and operation by service professional only.
- 3) Disconnect power before working on this unit.

A correct loop configuration and detector installation will ensure a successful inductive loop detection system.

5.1 Operational Constraints

5.1.2 Crosstalk

When two loop configurations are in close proximity, the magnetic field of one can overlap and disturb the field of the other. This phenomenon, known as crosstalk, can cause false detect and detector lock-up. Crosstalk can be eliminated by:

1. Careful choice of operating frequencies of operation frequency. The closer together the two loops, the further apart the frequencies of operation must be.
2. Separation between adjacent loops .where possible a minimum spacing of 2 meters between adjacent loops. Where possible a minimum spacing of 2 meters between loops should be adhered to.
3. Careful screening of feeder cables if they are routed together with other electrical cables. The screen must be earthed at the detector end only.

5.1.3 Reinforcing

The existence of reinforced steel below the road surface has the effect of reducing the inductance, and therefore the sensitivity, of the loop detection system .in this case two additional turns of wire should be added to the loop.

The ideal spacing between the loop cable and steel reinforcing is 150mm, although this is not always practically possible. The slot depth should be kept as shallow as possible, talking care that no part of the loop or feeder remains exposed after the sealing compound has been applied.

6 Installation Information

6.1 Loop and Feeder Specification

The loop must consist of insulated wire with a minimum copper cross-sectional area equivalent to 1.5 square millimeters. The feeder should be of the same material but twisted a minimum of 20 twists per meter.

Joints in the loop or feeder are not recommended. Where this is not possible, Joints are to be soldered and terminated in a waterproof joint bow. This is extremely important for reliable detector performance.

Where long loop feeders are used, or feeders are routed together with other electrical wiring, the use of a screened cable is suggested for the feeder. The screen must be earthed at the detector end only.

6.2 Sensing Loop Geometry

Sensing loops should, unless site conditions prohibit, be rectangular in shape and should normally be installed with the longest sides at right angles to the direction of traffic movement. These sides should ideally be 1meter apart.

The length of the loop will be determined by the width of the roadway to be monitored. The loop should reach to within 300mm of each edge of the roadway.

In general, loops having a circumference measurement in excess of 10 meters should be installed using 2 turns of wire, while loops of less than 10 meters in circumference should have three or more turns. Loops having a circumference measurement less than 6meters should be have four turns, It is good practice at time of installation to construct adjacent loops with alternate three and four turn windings to escape crosstalk.

6.3 Loop Installation

All permanent loop installations should be installed in the roadway by cutting slots with a masonry cutting disc or similar device. A 45° crosscut should be made across the loop corners to reduce the chance of damage that can be caused to the loop cable at right angle corners.

Nominal Slot width: 4mm

Nominal Slot depth: 30mm to 50mm

A slot must also be cut from the loop circumference at one corner of the loop to the roadway edge to accommodate the feeder.

A continuous loop and feeder is obtained by leaving a tail long enough to reach the detector before inserting the cable into the loop slot. Once the required numbers of turns of wire are will into the slot around the loop circumference, the wire is routed again via the feeder slot to the roadway edge. A similar length is allowed to reach the detector and these two tree ends are twisted together to ensure they remain in close proximity to one another.(Minimum 20 turns per meter).Maximum recommended loop sensitivity decreases as the feeder length increases, so ideally the feeder cable should be kept as short as possible.

The loops are seated using a “quick-set” black epoxy compound or hot bitumen mastic to blend with the roadway surface.

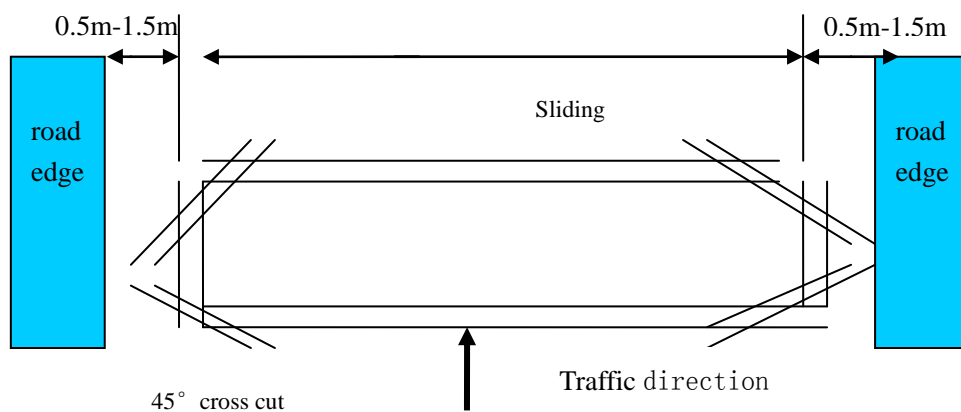


Diagram 6