Single Channel Loop Vehicle detector User Manual

1 Introduction

CE-L02-J9 is a single channel digital inductive loop vehicle detector. It is used to identify the presence of vehicle by means of an inductive loop buried under the road. This kind of detector is applied to parking lots, highway toll stations; signal lamps control system and so on. It simultaneously monitors one inductive loop and it has two relays to provide the output signal. Users can select different output signal to control mechanical drive and so on.

2 specifications

Power supply: AC 220V

Self tuning range: 30—700uH

Signal duration: No limited

Frequency: 20KHz ~500KHz

Sensitivity: 0.05%— 0.16% 3 step selectable

Response time: 100 mS

Alignment: Automatic regulation

Loop connection wiring: Max. length 500m, twisted at least 20 times per meter

Storage temperature: -40ºC ~+85ºC

Operating temperature: -40ºC ~+70ºC

Humidity: 95％ max

Lightening surge: power supply port ±4KV (1.2/50uS)

Pulse: ±3 KV/5KHz

3. Features

- High reliability, power supply with high reliability lightning protection function.
- Stable with the automatic temperature correction function.
- The user can choose a different frequency to avoid causing a machine failure
- There are three types of switches (high, medium, low) to control its sensitivity.
- Use simple fault detection function to judge by light-emitting diode display status in the event of failure

4. Installation guide

The vehicle detector must be installed in a water-proof environment as close as possible to the detection coil. The ability of the vehicle detector to work well depends to a large extent on the induction coil to which it is connected. Several important parameters of the coil include: coil material, coil shape and whether the correct construction buried. The following must be noted during installation:

4.1 Coil crosstalk

When the two induction coil is very close, the magnetic field of two coils superimposed together, causing interference with each other, this phenomenon is crosstalk. Crosstalk can lead to erroneous detection results and deadlocks of the detector. In the adjacent but belonging to the different sensors between the coil, to eliminate crosstalk, for CE-L02-J9, can be through the following measures:

丨The adjacent coil spacing increased. Must ensure that the distance between the detection coil is greater than 2 meters;

丨The wire leads of the coil for a good shield, the shield must be grounded at the detector end. Coil cables and connectors are preferably made of copper wire. Between the cable and the connector is best not to have wiring. If there is a need for a terminal, make sure the connection is reliably welded with a soldering iron and place in a waterproof place. Wire diameter is not less than 1.5 square millimeters. It is best to use double waterproof line.

4.2 coil shape and turns

Unless the conditions are not allowed, the detection coil should be rectangular. Two long sides are perpendicular to the direction of movement of metal object, the distance between them is 1 meter. The length of the long side depends on the width of the road, usually both ends narrower 0.3 meters than the road spacing. If the coil circumference is more than 10 meters, need to turn around two turns, if the length is 10 meters or less, need to turn around three or more, circumference within 6 meters, to around four turns. A good way to install is to turn the adjacent coil three and four turns.

4.3 coil installation essentials

Coil buried, first of all with a road cutting machine to cut out the slot on the road. The 45-degree chamfer In the four corners, to prevent sharp corners damage the coil cable. The slot width is typically 4 mm and the depth is 30 to 50 mm. But for the coil lead, need to cut a road to the roadside slot. Specifically shown in Figure 1:

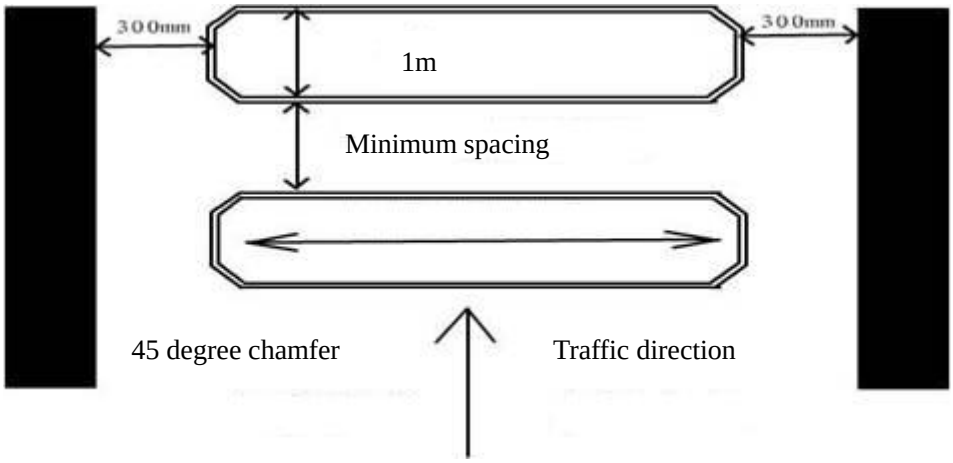


Figure 1, coil installation diagram

The output leads are in the form of tight twisted, at least 1 meter 20 weeks, the maximum length of the lead should not exceed 100 meters. Because the sensitivity of the detection coil decreases as the length of the lead increases, so the length of the lead to be as short as possible, After burying the coil with asphalt or epoxy plastic seal.

5 Application methods

5.1 Terminal description, as shown in Figure 2.

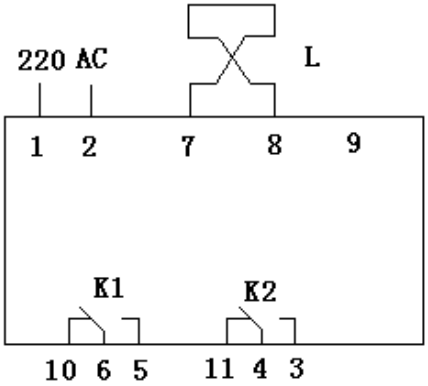


Figure 2

5.2 Relay output

The relay output has a total of four states. For details, refer to the following DIP setup status.

As shown in figure 3.

DIP 1 = OFF

DIP 2 = OFF

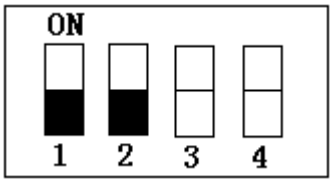


Figure 3

Coil induction and K1 / K2 output status, as shown in Figure 4.

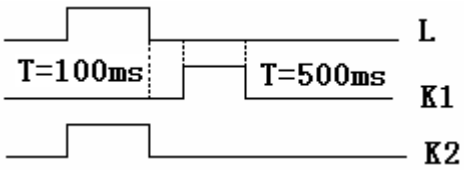


Figure 4

As shown in figure 5.

DIP 1=ON

DIP 2=OFF

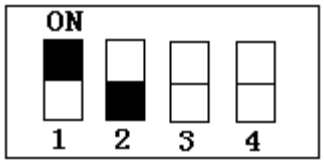


Figure 5

Coil induction and K1 / K2 output status, as shown in figure 6.

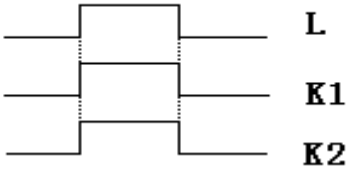


Figure 6

As shown in figure 7

DIP 1=OFF

DIP 2=ON

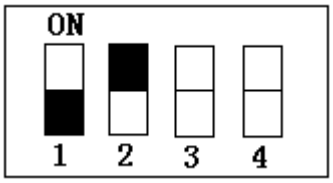


Figure 7

Coil induction and K1 / K2 output status, as shown in figure 8.

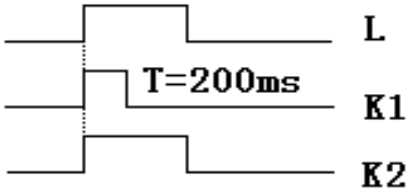


Figure 8

As shown in figure 9

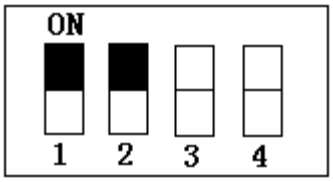


Figure 9

Coil induction and K1 / K2 output status, as shown in figure 10.

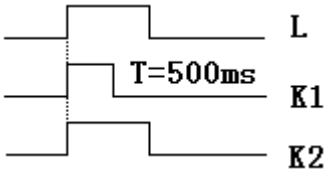
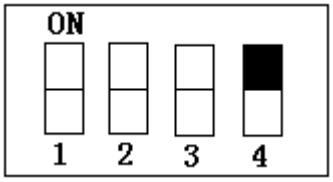


Figure 10

The frequency changes as shown in Figure 11.

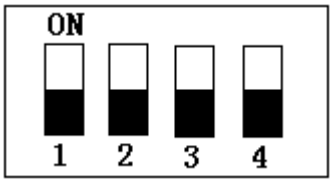
When dial 4 = ON, the frequency reduces to 0.7 times the DIP 4 = OFF.



Factory default settings

DIP 1=OFF

DIP 2=OFF



DIP 3=OFF

DIP 4=OFF

Figure 12

5.3 Sensitivity adjustment

Vehicle detector detection sensitivity is divided into high, medium and low three levels, through the top plate of the three fluctuations to set switch. As shown in figure 13.

H is high level

M is mid-level

L is low level

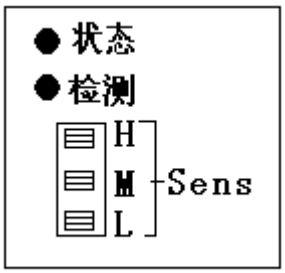


Figure 13

6 LED working status description

You can know the working status from the LEDs on the top panel

When the green LED light 65ms, off 65ms, is the detector adjusts reference frequency.

1. When the vehicle detector is working properly, the red LED is always on.
2. When the red LED light 600ms, off 60ms, is the detector at rest.
3. When the system detects a metal or vehicle, the green LED is lighting until the metal or vehicle is removed away from the vehicle detector detection range.
4. When the coil is broken, short circuit, the red LED light 600ms, off 60ms.
5. When the red LED light 3S, off 1S, because of the coil inductance is too small, the coil turns is not enough.
6. When the red LED light 1S, off 3S, because of the coil inductance is too large, the coil turns too much.