VEHICLE LOOP DETECTOR USER'S GUIDE

1. Introduction

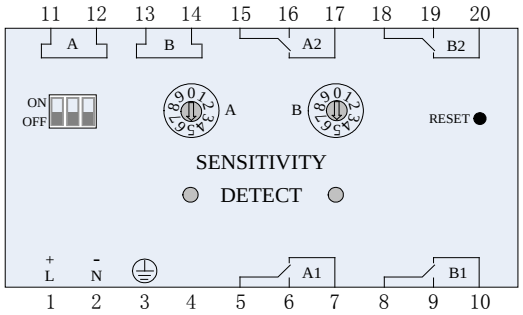
TLD-600 is used for wherever vehicles have to be detected, for example for monitoring and safe-guarding access ways or for counting vehicles. The output signal can be used for controlling door drive mechanisms, operating barriers, activating card dispensers etc.

2. Technical parameters

* Type：TLD-600（double channel）
* Operating temp.: -30℃ ～ +75℃
* Storage temp.: -40℃ ～ +85℃
* Relative humidity: ≤95%
* Shell: PC + ABS engineering plastics
* Installation: DIN rail
* Dimensions: 110×60×100 mm (L×W×H)
* Net Weight: 400g
* Operating voltages： AC220V±10%
* Power consumption：＜5W
* Relay output：DC24V /3A
* Frequency range：20kHz ～ 170kHz
* Reaction time：20 ms
* Sensitivity：10 grades adjustable
* Loop inductance: Ideal 100μH～300μH Max 50μH～1000μH
* Loop conn. Wiring: Max 100m, twisted at least 20 times per meter, total resistance <10 Ohm
* Automatic calibration time:2s～5s

3. Principle

It is based on a change in the inductance within the loop which is caused by the metallic components of passing vehicles. The changes are picked up and evaluated by a microprocessor.



Double loop detector panel

a. Tune

The tuning range is from 50μH to 1000μH, and such wide tuning range ensures low requirements for the loop and wiring. Any inductance changes will feedback to the compensation circuit in detector to ensure normal work.

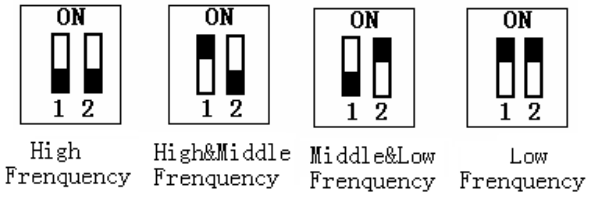
b. Adjustable sensitivity

When in low sensitivity, the detector will detect vehicles with high chassis or trailers correctly except cars, bicycles and other small metals. The sensitivity adjust button is the rotary encoder switch on the panel, "0" with low sensitivity and "9" with high sensitivity. The A switch on left is corresponding to loop A, while B on right is corresponding to loop B.

c. Reaction time

Its definition is the time starting from the metal enters into the loop and ending when the detector gives indication signals.

d. Frequency adjustment

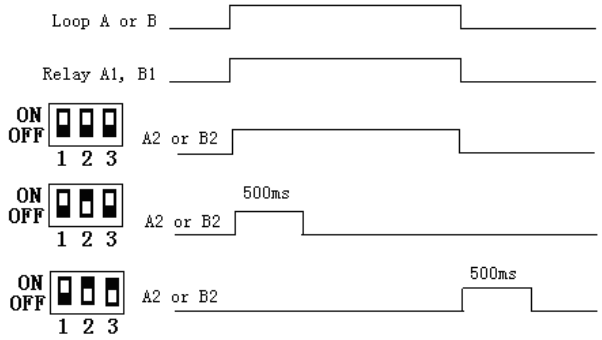


When power on, the detector can calibrate itself automatically and the two red lights are on which will continue for 2s.

e. Output mode of relay

Every channel has two relay outputs in our detectors. There are two relays A1 and A2 with channel A. And there are two relays B1 and B2 with channel B. Relay A1 and B1 are existing output (on when metals on the loop and off when metals leaving). Relay A2 and B2 are multifunctional output set by the three bit code switch on the left of the panel. Operate as follows:

Relay A2 and B2 output vehicles' detection signals



Relay A2 and B2 output detection signals

Panel set	Vehicles enter from loop A to B	Vehicles enter from loop B to A
ON OFF 1 2 3	Relay B2 on before vehicle leaving from loop B	Relay A2 on before vehicle leaving from loop A
ON OFF 1 2 3	Relay B2 on for 500ms	Relay A2 on for 500ms

4. Selecting suitable loop geometry

The loop geometry must be adapted to the respective application. Sensitivity is optimal if the loop is not bigger than the object to be detected. For installation reasons, the loops generally have a rectangular design (Fig. 2). This

geometry is suited for detecting passenger cars and motor Lorries. Loops installed at a 45° angle with respect to the road are particularly suited for detecting bicycles (Fig. 3). The so-called figure of eight loops are mainly used for applications requiring low lateral sensitivity or subject to interference voltages caused by currents in railway tracks. The loop is installed in the form of an «8» (Fig. 4). This geometry is used if, for technical reasons, a loop has to be in stalled very close to a gate.

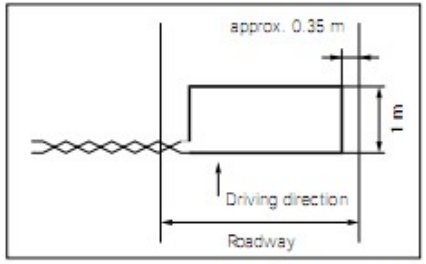


Fig. 2

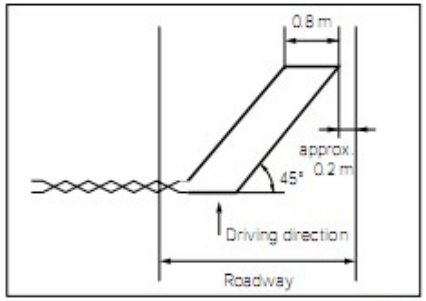


Fig. 3

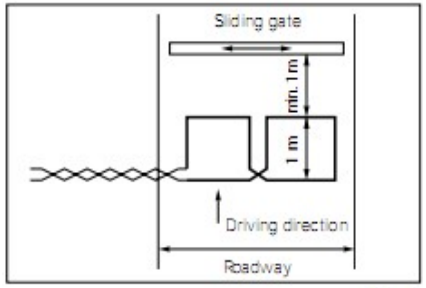


Fig. 4

5 Number of loop windings

The number of windings strongly depends on the circumference of the loop. The smaller the loop, the more windings are required. Loop circumference Number of windings under 3 m Contact us

Loop circumference	Number of windings
Under 3 m	Contact us
3-6 m	5 windings
6-10 m	4 windings
10-25 m	3 windings
> 25 m	2 windings

6. Installing the loop

After determining the loop geometry, a groove (5-8 mm wide, 30-50 mm deep) must be cut in the floor for installing the loop. We recommend cutting an inclined groove (45° angle) at the corners of the loop. Routing the loop wire along this incline will protect it from excessive wear at the corners. The groove must then be cleaned avoiding any kind of moisture. Run the loop wire as tight as possible along the very bottom of the groove.

You can use commercial copper strand (flexible, insulated, 1.5 mm

2) As loop wire.

Prior to sealing up the groove, the loop inductance should be checked using a measuring device, and modified as required (optimum value80-300 µH). Then run a nylon cord along the loop and seal up the groove. Suitable sealing compounds are for example bitumen or artificial resin. Once the sealing compound has set, an earth leakage measurement must be carried out. The loop detector can then be connected to the power supply.

Caution! When sealing up the groove, ensure that the temperature of the sealing compound (e.g. hot bitumen) does not exceed the maximum admissible temperature of the loop insulation, as this might cause an earth fault. Use a heat-resistant insulated wire for such cases.

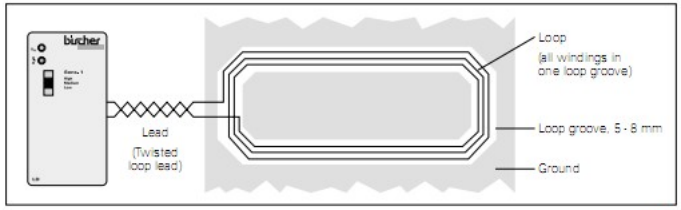


Fig. 5

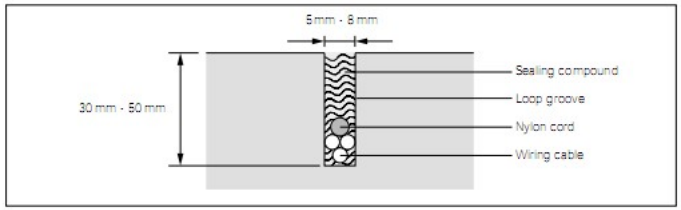


Fig. 6