DLD-420 SERIES
VEHICE DOUBLE LOOP DETECTOR
USER GUIDE

Application

Loop detectors are used 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 and gate drive mechanisms, operating barriers, controlling traffic light systems in car parks.

Functional description

DLD-420 has two-way output relays. Two outputs of them are unlimited when the corresponding loop is permanently covered，while the others are multi-mode that can be set by users. The direction detecting Function can be used to statistics the vehicle flux. The principle 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. Ease of use thanks to automatic calibration when the operating voltage is applied.

Technical Data

- Supply voltage AC: 220V
- Sensitivity: adjustable in 3 increments (high .medium. low)
- Operating temperature: -25°C to 65°C
- Storage temperature: -40°C to 85°C
- Frequency range:20 kHz to 170 kHz
- Reaction time: 100ms
- Loop inductance: Ideal:150μH to 300μH(incl. conn. wiring) : max:50μH to 1000μH
- Loop connection: <5m optimal
- Loop connection wiring: Twisted at least 20 times per meter
- Dimensions: 74 x36x85 mm (WxHxL)
- Net Weight: 300g

Frequency

The frequency can be altered by means of DIP5-Switch and DIP6-Switch.
DIP switch 5 (LB) use to set up the frequency of loop1; DIP switches 6 (LA) use to set up the frequency of loop2. Switches in the "ON" position that low frequently working; Switches in the "OFF" position that high frequency working. After frequency adjustment, the detector will be reset when the power is automatically calibration.

Attention:

1) Before setting frequency first turn off the power detector then remove from the sockets and

discard plastic shell.

2) DLD-420 EX-work setting: loop 1 is high frequency, loop 2 is low frequency. Therefore, users generally need not to adjust the frequency.

Sensitivity

In order to calibrate on site the wire loop to the loop detector, the sensitivity can be adjusted on the front of the housing by means of a three-stage sliding switch.

- High: high sensitivity (e.g. also bicycles can be detected)
- Medium: medium sensitivity (e.g. for automobiles)
- Low: low sensitivity (preferably Lorries will be detected)

Ensure that the loop is NOT activated when making these adjustments.

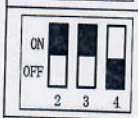
Functions of the output relays

The following functions are preset at the factory and can be ordered as required:

setting	function
	Dualroad sense independent (dial code 2/3/4 does not work)
	vehicle direction (count) check mode(dial code 2/3/4 setting , Diagram2)

Diagram 1

DLD-420 vehicle direction (count) check mode output signal and setting:

Setting	The vehicle enters the loop 2 from loop1	The vehicle enters the loop 1 from loop2
	After the vehicle enters the loop 2, the relay2 closes until the vehicle leaves the loop2	After the vehicle enters the loop1, the relay1 closes until the vehicle leaves the loop1
	When the vehicle enters the loop 2, the relay2 closes and the 500ms is released	When the vehicle enters the loop1, the relay1 closes and the 500ms is released
	After the vehicle leaves the loop1, the relay 2 closes until the vehicle leaves the loop2	After the vehicle leaves the loop2, the relay1 closes until the vehicle leaves the loop1
	After the vehicle leaves the loop1, the relay2 closes and the 500ms is released	After the vehicle leaves the loop2, the relay1 closes and the 500ms is released
	After the vehicle leaves the loop2, the relay1 closes and the	After the vehicle leaves the loop1, the relay2 closes and the 500ms is released

	500ms is released	
	After the vehicle leaves the loop2, the relay1 closes and the 500ms is released	After the vehicle leaves the loop1, the relay2 closes and the 500ms is released

Diagram 2

Connection diagram DLD-420

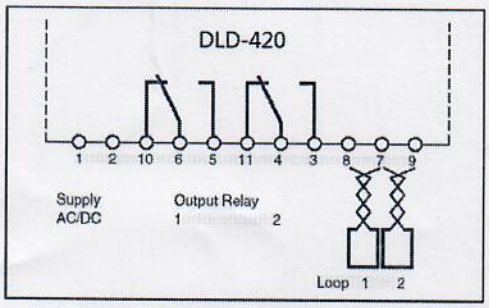


Diagram 3

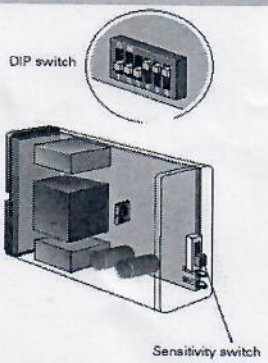


Diagram 4

II. Installation Information

2.1 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.

2.2 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 300rnmof 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.

2.3. 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 number of turns of wire are would 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 anther.(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.

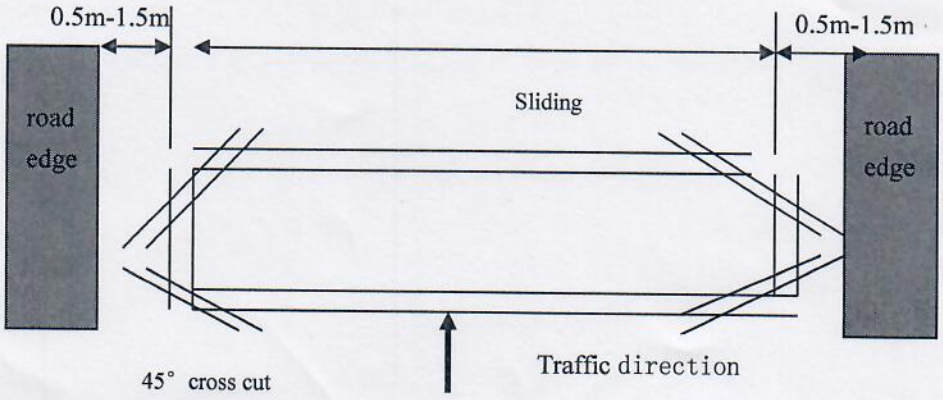


Diagram 6