

Functional description

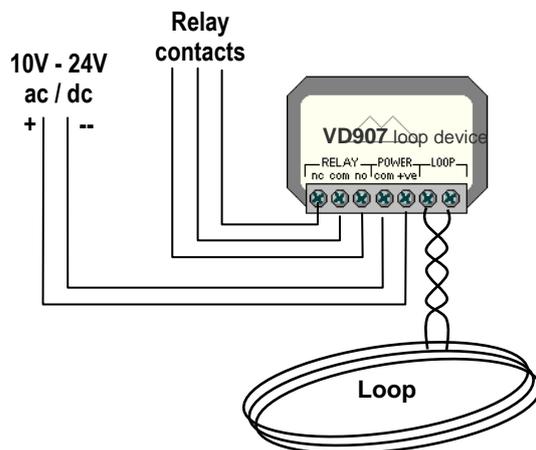
VD907 is a compact loop detector module. Advanced self setting Hypertrack™ software eliminates the need for adjustments making the VD907 the simplest plug'n'play detector. Even long run in leads are compensated for.

VD907 has fault diagnostics and fail safe software. If a loop or internal fault is detected, the barrier or gate will not close.

Loops are used to trigger a barrier to open for a vehicle, or prevent an arm lowering onto a vehicle. VD907 can be used for both functions at the same time on most controllers. They are completely UNSUITABLE for pedestrian safety.

Loop detectors measure the change in ferric mass within the Gaussian field of an inductor set in the road surface. A small increase in inductance is interpreted as a vehicle.

The detector calibrates on power up. The memory is retained on power interruptions of less than 1.5 secs. Green power LED flashes once per second normally, and faster if a fault is detected. The red LED is on when a vehicle is detected.



Connections

VD907 accepts a wide supply voltage range. If the supply is dc be sure to connect the -ve to 'com' and +ve to + terminal.

The relay is only suitable for low current controller switching. Contacts are isolated from the power supply. Two loops can be placed near to each other without causing interference due to the software rejection.

Long tails to the loop should be avoided, though the software has some compensation. Tail must be twisted the same way back to the controller.

Fault finding

Most problems are loop faults. If the green LED flashes 2 or 10 times a second, and red LED is on, reset & recalibrate the loop by removing the power for 5 secs. Inspect the ground around the loop for surface break up. If this only temporarily solves the problem, make up a temporary loop to lay on top of the road surface. It will be sensitive to small movements but stable enough to test the detector module.

VD907 specification

Power	10-30V ac/dc
I quiescent	1mA (not detecting)
I max	25mA (detecting & fault)
Op. Temp	-35° C to 70° C
Loop range	20µH to 1200µH
Dimensions	25 x 39 x 52mm (excl conn)
IP rating	IP65
Relay	1A @ 30Vdc isolated
Sensitivity	ΔH = 0.005%

Loop tuning

An inductor known as the ground loop is set in the road surface. The practical field of detection is a cone rising to a height 70% of the loop's diameter. The loop inductance needs to be within the range given in the specification.

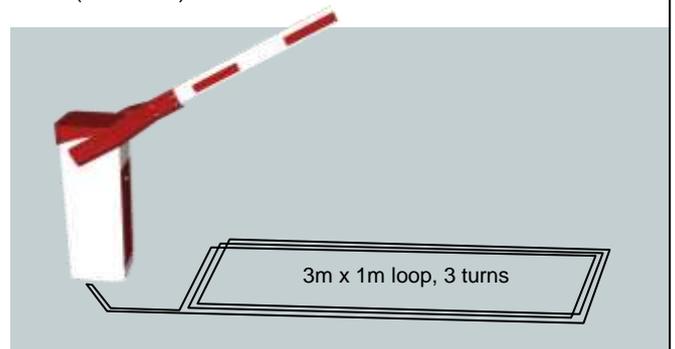
Detectors calibrate themselves to the loop on power up. The green LED flashes if the loop is out of calibration range. Twice per second means open circuit. Flashing ten times per second means the loop is short circuited.

Loop requirements

A loop may be any size, shape, or number of turns, but there are practical limitations required to detect a vehicle acceptably. The loop's shortest dimension should be no less than 30". It must be set within 4" of the road surface away from steelwork. Most important, the length of cable used in the sensitive area should be from 18m to 30m.

A typical loop for detecting a passing vehicle would be a 1m square with 5 to 6 coils of wire $(1+1+1+1) \times 6 = 24m$.

A typical safety loop under a 4m long barrier would be 1m x 3m to cover the road width, and consist of 3 turns of wire $(1+3+1+3) \times 3 = 24m$.



Loop cable should be selected for low impedance. Cable insulation needs to withstand temperature, chemicals and abrasion of the slot filler during installation and its lifetime

The cable is installed as a single length from the detector in the barrier round the loops and back again. The leads back to the barrier, known as the tails, must be twisted together to de-sensitise the tail. One twist per inch is best.