



The sensor is buried in the centre of a drive, detecting the ferrous parts of a vehicle. Range is dependant on vehicle size. Detection radius is typically 400mm and detection height about 1.5m.

VD959 kit uses the versatile VD955 detector with an adjustable sensitivity. Two equally spaced sensors can be used across wide roads, but sensitivity setting will need to be increased.

Sensors can be placed at the side of a narrow road. Instead of vertical, it is mounted pointing at the middle of the vehicle (almost horizontal), less than 1.5m from a vehicle. Sensitivity will need to be increased (see app QW102).

Installation

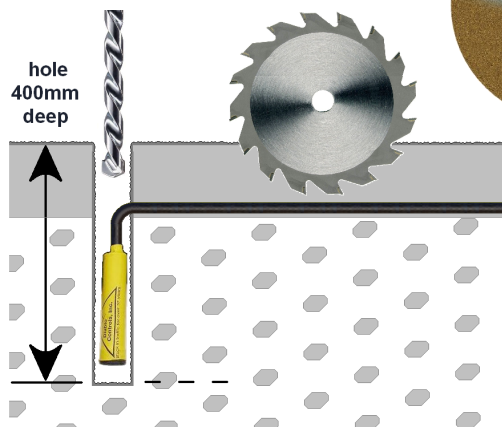
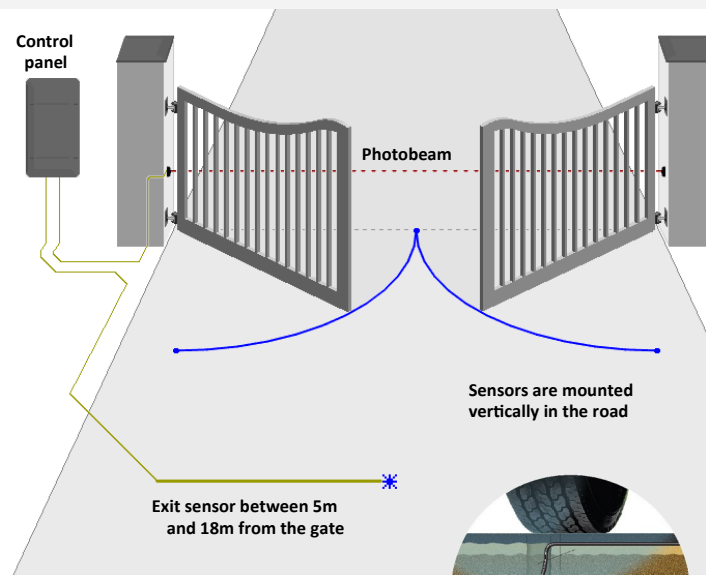
Choose a position within 22m of the controller, but at least 3m back from the gate line. Avoid steel manhole covers and drains. Drilled holes are ideal for tarmac and concrete road surfaces. The sensor fits down a 30mm diameter hole 300-500mm deep. For gravel or hardcore, dig out a hole and fix a 32mm ID length of water pipe vertically in a weak concrete mix.

Insert the sensor. The top of the yellow sensor should be at least 250mm below surface. Pour kiln dried sand in to fill the hole to the top of the sensor. Check the sensor resistance before sealing the road surface. The sensor impedance should be 2 to 5 ohms depending on lead in cable length. Finish off by dressing the wearing surface with tarmac repair material or Bitem.

For the lead back to the controller, you can cut a slot in tarmac, or lay a duct in gravel or hardcore. The cable is robust enough to be laid directly in non-compacted ground. A conduit makes a better job and is easier to maintain. Run the cable back to the VD959 card in the control box.

VD959 Exit Sensor

Installation



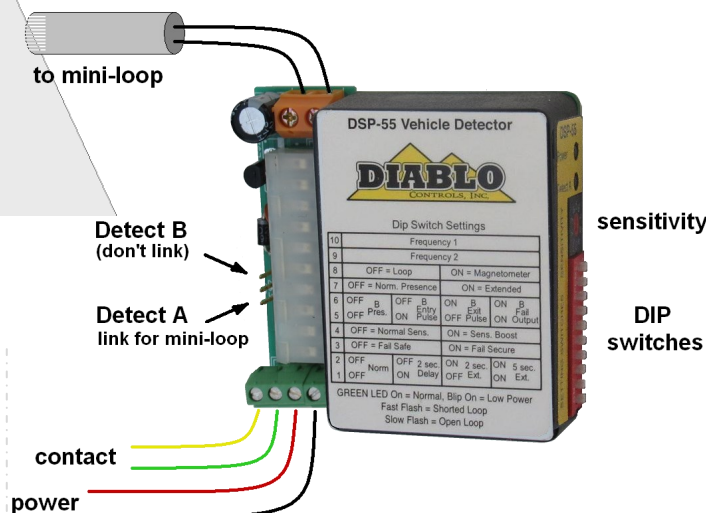
DIP switch settings

- 1&2 output A timing. Set these two OFF.
- 3 sets fail safe or fail secure. Set 3 to ON (fail secure).
- 4 is sensitivity boost. Set 4 to OFF to disable.
- 5&6 set output B, which is not used in mini-loop mode.
- 7 extends presence holding (not used with mini-loop)
- 8 must be set ON for use with a mini-loop.
- 9&10 frequency. Use different settings for each loops



VD955i specification

Power	12-25Vac 12-30Vdc
I quiescent	$I_{max} = 33mA @ 14V$
Op. Cond'ns	-35° C to 74° C
Module	24 x 61 x 63mm (inc conn)
Sensor 909s	120 x 28mm Ø 2-5 Ω
Relay	Solid state isolated 100mA
Sensitivity	2m ² /s (approx 1m)



Tuning and adjustment

DIP switch 8 must be 'ON' and the jumper is on the lower pin position for mini-loop operation. DIP switch 3 should also be 'ON' but all the others 'OFF'. A rotary switch gives 10 sensitivity settings that be changed at any time.

Clear the area of all steel objects from before powering up. The detector will null whatever is left. 'Detect A' red LED pulses once as a vehicle is detected.

Trouble shooting

With DIP3 'ON' (secure mode) the gate will remain secure (closed) if there is a mini-loop fault. With DIP3 'OFF', the gate will open if there is a fault.

Green LED is normally on. If the mini-loop is disconnected the green LED will flash at 2Hz. If the mini-loop is short circuit, green LED will flash at 10Hz. The mini-loop resistance can be checked. Normal is 2-5 Ω.



Mini-loops owe their success to a new technology brought to market in an elegant, simple to install product. As usual, it is the software that turns an idea into a solid reliable product.

The sensor is buried in the centre of a driveway. It detects the approaching edge of large ferrous objects. Range is dependant on size and metallic content of vehicles. Detection radius is typically 400mm and detection height about 1.5m.

The VD909 module connects to all known gate and barrier controller power supplies. The module is small enough for tightly packed control boxes.

Installation

Choose a position within 22m of the controller, but at least 3m back from the gate line. Avoid steel manhole covers and drains. Drilled holes are ideal for tarmac and concrete road surfaces. The sensor fits down a 30mm diameter hole 300-500mm deep. For gravel or hardcore, dig out a hole and fix a 32mm ID length of water pipe vertically in a weak concrete mix.

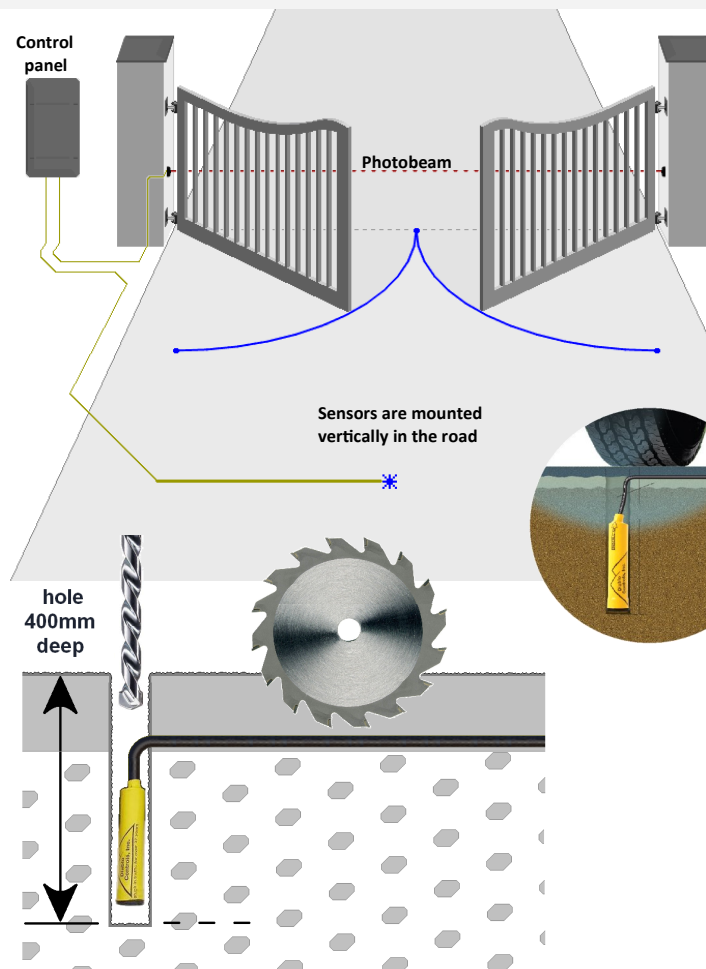
Insert the sensor. The top of the yellow sensor should be at least 250mm below surface. Pour kiln dried sand in to fill the hole to the top of the sensor. Check the sensor resistance before sealing the road surface. The sensor impedance should be 2 to 5 ohms depending on lead in cable length. Finish off by dressing the wearing surface with tarmac repair material or Bitem.

For the lead back to the controller, you can cut a slot in tarmac, or lay a duct in gravel or hardcore. The cable is robust enough to be laid directly in non-compacted ground. A conduit makes a better job and is easier to maintain. Run the cable back to the VD909 module in the control box.

VD909 Exit Sensor

doc.QPT09 v1.2

Installation



Connections

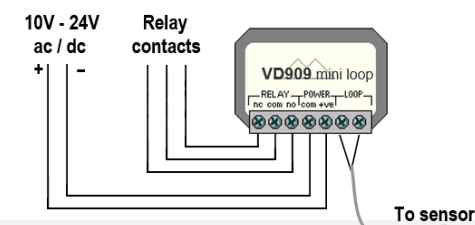
The detector calibrates to ambient conditions on power up. A green LED blinks to show power connection. Blinking conserves power suitable for solar powered controllers.

An output pulse is generated when the rate of change of reluctance drops below the long term mean. The red detect LED pulses once as a vehicle is detected. The output is an isolated relay with NC and NO contacts.

VD909 accepts a wide supply voltage range. If the power supply is dc, be sure to connect the -ve to 'com' and +ve to + terminal. The road sensor is supplied with a 22m tail in resistant cable. The tail can be shortened to suit the run back to the controller. The sensor input is also isolated.

VD909 specification

Power	10-30V ac/dc
I quiescent	$I_q = 3\text{mA}$ $I_{\text{max}} = 25\text{mA}$
Op. Cond'ns	-35° C to 74° C IP65
Module	25 x 39 x 52mm (excl conn)
Sensor 909s	120 x 28mm Ø 2-5 Ω
Relay	1A @ 30Vdc isolated
Sensitivity	2m ² /s (approx 1m)



Loop tuning

The detector calibrates to ambient conditions on power up. Be sure to clear all objects from the detection area before switching on the power.

Sensitivity of VD909 is factory set. It is possible to reduce sensitivity by adding inductors in parallel with the sensor. Ask your retailer for an inductor pack. Instructions are supplied in the pack (QW104).

An output pulse is generated when the rate of change of reluctance drops below the long term mean. A green power LED blinks to conserve power, suitable for solar powered controllers. The red detect LED pulses once as a vehicle is detected and provides sensor fault diagnosis.

Layout options

It is possible to mount the sensor horizontally at the side of the road. An application note can be downloaded from the website (see app QW102).

For wide roads, two mini-loops can be connected to the same module. Sensitivity is shared equally between the two sensors (see app QW103).

Trouble shooting

VD909 module is fail secure. The output will remain in the undetect state should there be a loop fault or an operation fault in the module.

The red LED on the module will flash if the loop fails. It flashes at 2Hz if the loop is open circuit, or 10Hz if the loop is shorted.