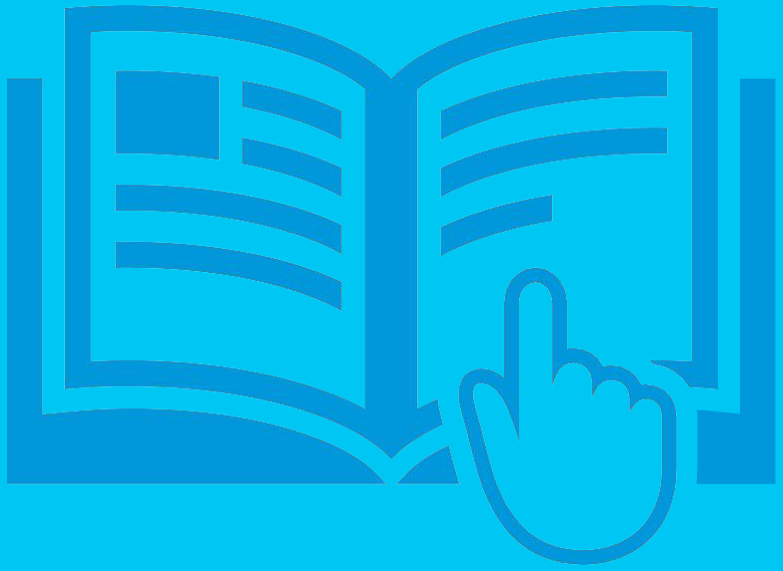
INSTRUCTION MANUAL

Vehicle Loop Detector

PD-182



PD-182 Vehicle Loop Detector

Chapter 1

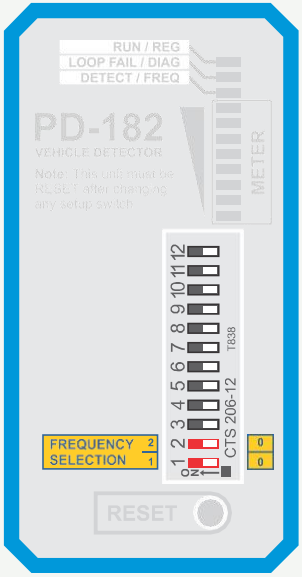
DipSwitch Settings

How to setup all functions
from PD-182

In this chapter you can see

- Frequency Selection - 4 levels page 5
- Sensitivity Selection - 8 levels page 6
- ASB - Automatic Sensitivity Boost page 7
- Signal Filtering page 8
- Hold Time page 9
- Pulse Mode / Delay page 10
- Detect Stop page 11

Frequency Selection - 4 levels



The operating frequency of the loop is a function of the specific loop inductance and DIP switch settings 1-2. The primary purpose of the frequency setting is to allow the installer the ability to set different operating frequencies for multi-loop installations, recommended to prevent crosstalk/interference from adjacent loops. After changing the frequency setting, the detector will re-initialize and show the new operating frequency.

Frequency LOW

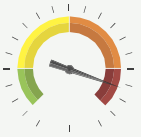
DipSwitch 1 and 2 is OFF

Frequency MID LOW

DipSwitch 1 is ON

Frequency MID HIGH

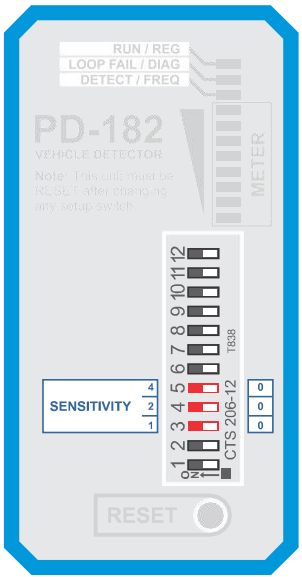
DipSwitch 2 is ON



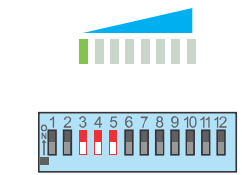
Frequency HIGH

DipSwitch 1 and 2 is ON

Sensitivity Selection - 8 levels

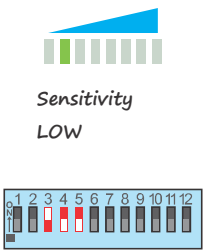


The Sensitivity is the minimum change in inductance required to produce a detect output. Eight Sensitivity settings are available on the switches to allow flexibility in configuration. Typical applications require a setting of 3 or 4.



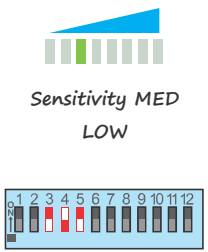
Sensitivity VERY LOW

DipSwitch 3, 4 and 5 is OFF



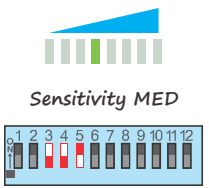
Sensitivity LOW

DipSwitch 3 is ON



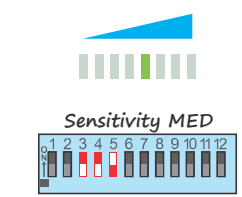
Sensitivity MED LOW

DipSwitch 4 is ON

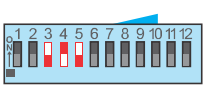


Sensitivity MED

DipSwitch 3 and 4 is ON

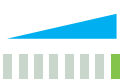


Sensitivity MED



DipSwitch 5 is ON

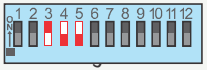
Sensitivity HIGH



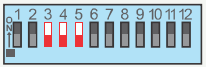
DipSwitch 3 and 5 is ON

Sensitivity VERY HIGH

DipSwitch 4 and 5 is ON

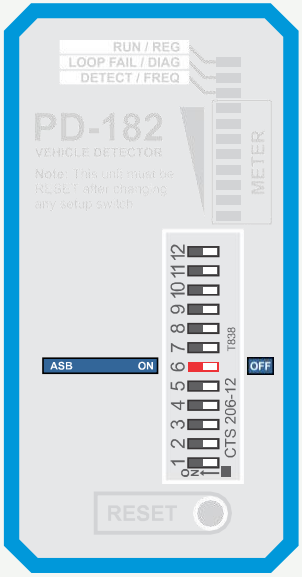


MAXIMUM

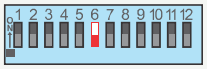


DipSwitch 3, 4 and 5 is ON

ASB - Automatic Sensitivity Boost

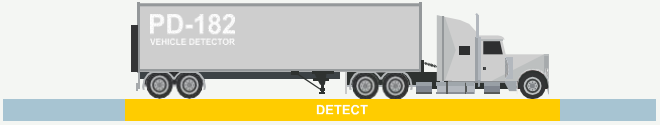


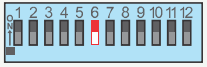
The Automatic Sensitivity boost causes the sensitivity to increase following initial detection. This feature is useful to prevent dropout when detecting high-bed vehicles. The sensitivity returns to its normal setting after the vehicle exits the loop.



ASB activated

DipSwitch 6 is ON

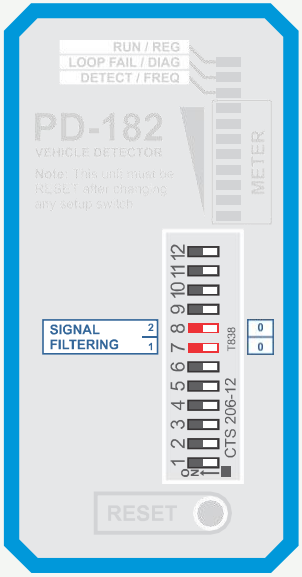




ASB disactivated

DipSwitch 6 is OFF

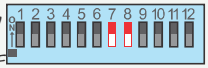
Signal Filtering

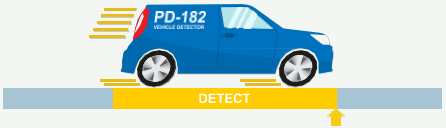


This feature inputs a momentary delay into the detection circuit to verify that a vehicle is present in the loop for a minimum time period before activation occurs. In some applications it is necessary to filter out short detections such as cross traffic or short burst of radio frequency interference.

Signal Filtering LOW

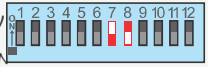
DipSwitch 7 and 8 is OFF

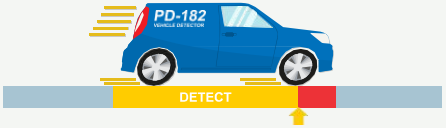




Signal Filtering MID LOW

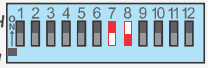
DipSwitch 7 is ON

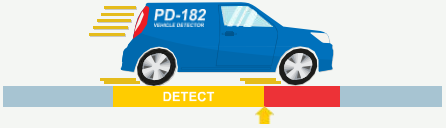




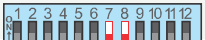
Signal Filtering MID HIGH

DipSwitch 8 is ON



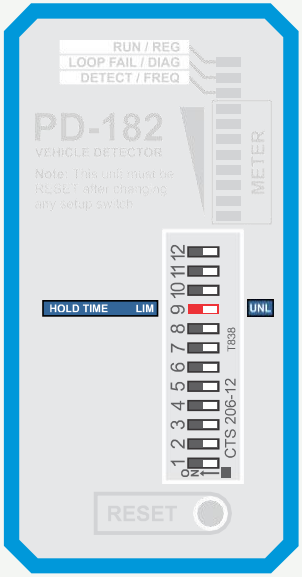


Signal Filtering HIGH



DipSwitch 7 and 8 is ON

Hold Time

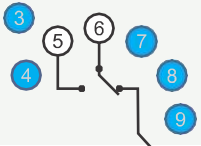


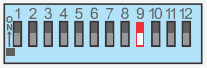
This feature allows for the detector to hold the Presence Relay for as long as any vehicle is in the detection loop or to allow the Presence Relay to de-activate after 10 minutes.

Warning ! DO NOT USE hold time function unless opening is protected by a secondary safety device.

Hold Time Limited

DipSwitch 9 is ON

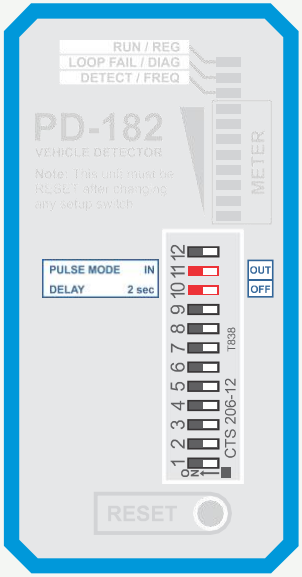




Hold Time Infinite

DipSwitch 9 is OFF

Pulse Mode / Delay



Pulse function is provided by the Relay Output on pins 3, 4, and 11. The pulse of about 0.5 second can be generated when the car enters the loop or when it exits with option of 2 seconds delay.

Pulse Mode OUT

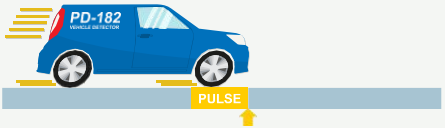
DipSwitch 10 and 11 is OFF

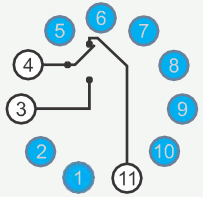
Pulse Mode OUT with Delay

DipSwitch 10 is ON

Pulse Mode IN

DipSwitch 11 is ON

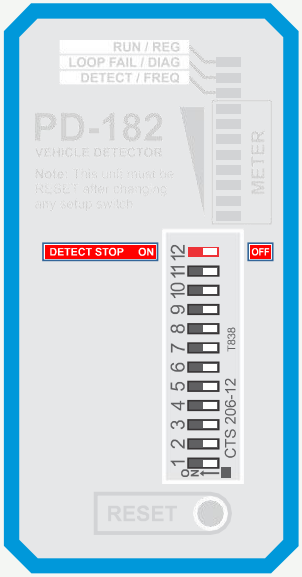




Pulse Mode IN with Delay

DipSwitch 10 and 11 is ON

Detect Stop



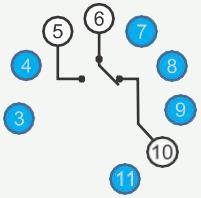
The Detect Stop feature requires that a Vehicle must come to a complete stop over the loop for a minimum of 1 second (typical 1-2s) before activates Relay Output on pins 5, 6, and 10.

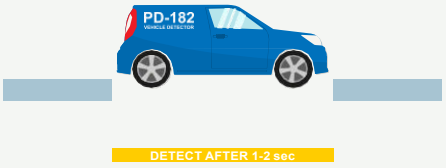
Presence Mode

DipSwitch 12 is OFF

Detect Stop Mode

DipSwitch 12 is ON



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Chapter 2

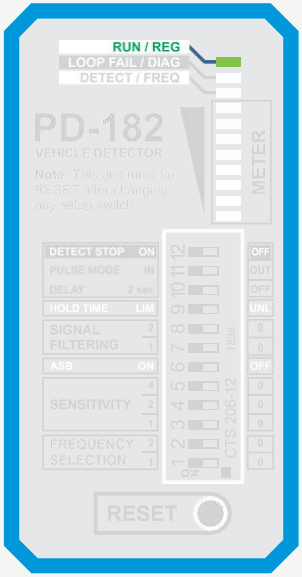
LED Panel Indications

How to read all LED Panel Indications from PD-182

In this chapter you can see

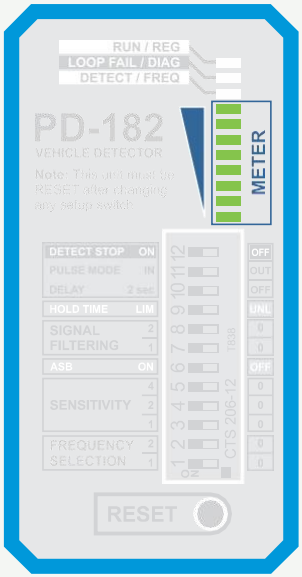
- Run / Fail Memory / Serial Connection page 14
- Level Meter page 15
- Loop Fail / Diagnostics / Recalibration page 16
- Detection / Frequency Counter page 17

Run/Fail Memory/Serial Connection



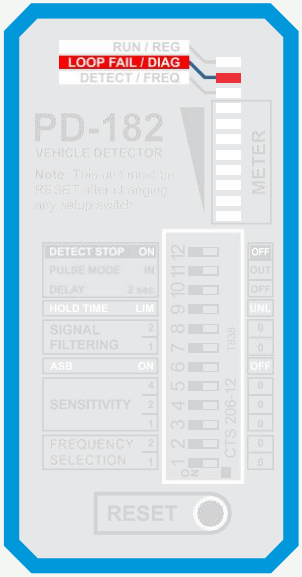
Indication	Possible cause	Solution
Green LED flash fast	Working	Nothing to do
Green LED is ON	Detector is connected using RS232 protocol	Nothing to do
Green LED flash slow	Loop was previously shorted or open	Check loop resistance on the appropriate loop pins on the control board connector. Press RESET to clear this indication.

Level Meter



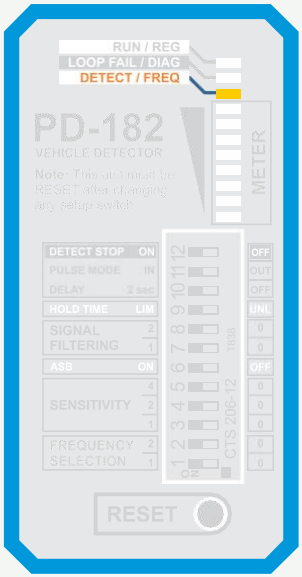
Indication	Possible cause	Solution
After Reset one LED from Meter is ON	Sensitivity Level Indication	Nothing to do
Meter is Instable Level remains full after vehicle has left loop	1 - Faulty loop 2. Poorly crimped terminals 3. Loose connections 4. Cross-talk between adjacent loops	1. Perform megger test from loop lead to ground, should be >100 mega ohms 2. Check loop connections to terminals 3. Check splices are properly soldered and sealed against moisture 4. Set adjacent loops to different frequencies (see Frequency Setting)
With vehicle on loop, the level is not full	Loop sensitivity set too low	Increasing the sensitivity using the DipSwitch 3, 4 and 5

Loop Fail / Diagnostic / Recalibration



Indication	Possible cause	Solution
LED flash After Reset	Performing Recalibration	Nothing to do
LED Flash 2 Times	Very low frequency	Reduce the number of loop windings
LED Flash 3 Times	Very high frequency	Increasing the number of loop windings
LED Flash 4 Times	Oscilator stop work	Check loop resistance on the appropriate loop pins on the control board connector, between .5 ohms and 5 ohms.

Detection / Frequency Counter



Indication	Possible cause	Solution
With vehicle on loop LED is ON	Detection event	Nothing to do
After change the DipSwitch 1 or 2 LED start flash	Frequency Counter Function	Loop oscillator frequency is displayed on yellow status LED after the device is reset. LED will flash in steps of 10 kHz. Example: If LED flash 7 times it means that the frequency of loop is from 70 kHz to 79 kHz.

Chapter 3

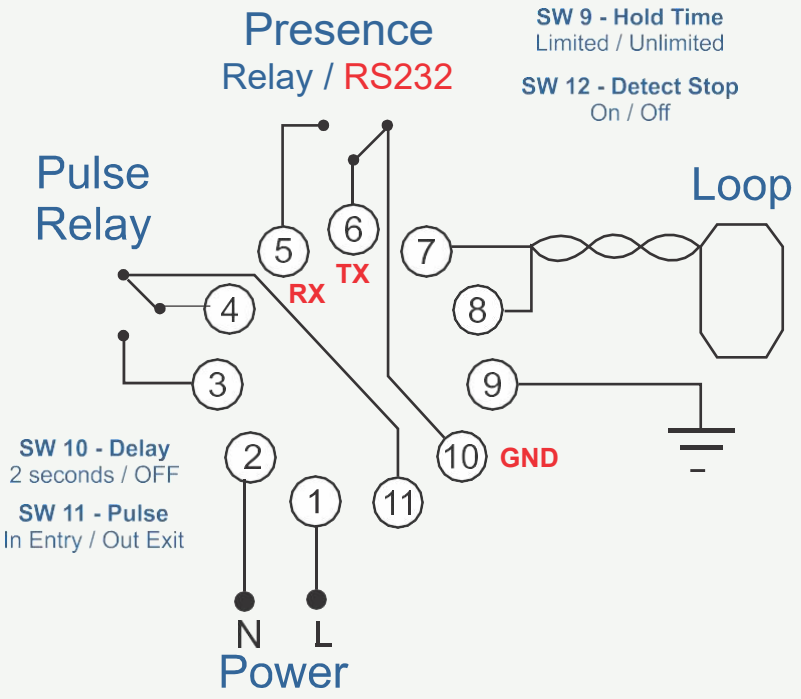
Pin Out Description

How to connect all pins from PD-182

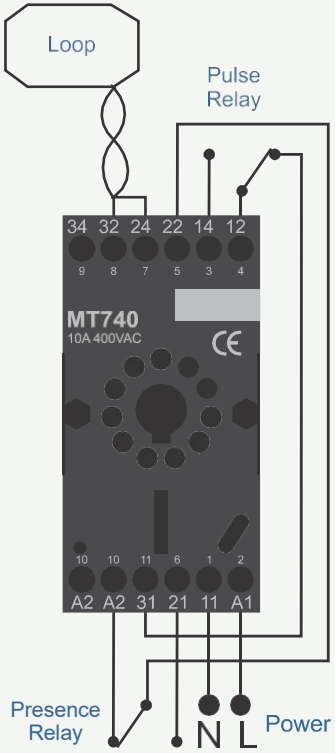
In this chapter you can see

- 11 Output Pins page 20
- Socket page 21

11 Output Pins



Socket



Pin	Values
1	220 VAC
2	220 VAC, Neutral
3	Pulse Relay NO Contact
4	Pulse Relay NC Contact
5	Presence Relay Common
6	Presence Relay NO Contact
7	Loop Wire
8	Loop Wire
9	--
10	--
11	Presence Relay NC Contact

Chapter 4

Technical Features

Specifications about PD182

Technical Features

Specifications	Values
Loop Frequency	4 settings (low, med-low, med-hi, high)
Loop Inductance	20...2000µH (Q factor > 5)
Frequency Range	40 kHz – 140 kHz
Sensitivity	0.001 % - 0.5% digital in 8 steps
Level Meter	Indicates sensitivity level, detection level and interference
Grounded loop	Isolation transformer allows operation with poor quality
Automatic tuning	Detector tunes to loop on power-up
Environmental tracking	Automatic compensation
Surge protection	Loop circuitry protected by surge suppressors
Presence relay / Pulse relay	SPDT relay contacts (form C)
Contact rating (resistive load)	2A @ 30VDC, 0.5A @ 125VAC
Detect Stop	Requires vehicle to stop for a minimum of 1 second
ASB (Automatic Sensitivity Boost)	Increases sensitivity after initial detection
Detection speed	<10 ms (at LOW filtering stage and at loop frequency of 40 kHz)
Detection type	Detect Presence / Detect Stop / Pulse 0.5 sec / Delay pulse
Power	12 /24VAC/ DC or 110V,200V ,240 VAC (48...62Hz) (Max. 1.4 VA)
Operating temperature	-40°C...82°C (-40°F...180°F) 0...95% relative humidity
Enclosure	73mm (2.9") x 38mm (1.2") x 78mm (3.1") - 0.25 lbs. (113 g) - IP30
Connector	11 pin male connector (JEDEC B11-88)