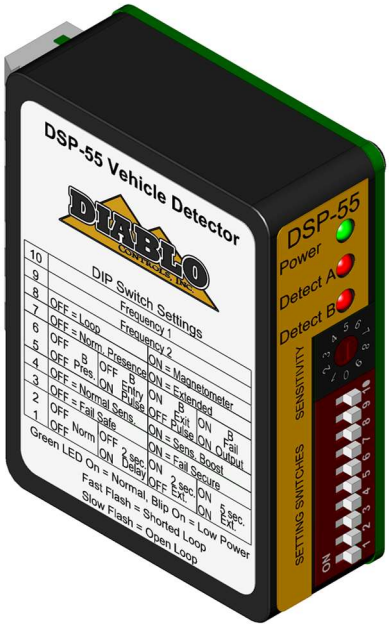
DSP-55

Loop and Mini-Loop Vehicle Detector



The DSP-55 is a compact vehicle detector that will operate on any voltage from 8 to 35 volts DC. The low voltage range is ideal for solar applications.

The DSP-55 can be connected to a standard inductive loop or one of Diablo Controls mini-loops. The Diablo Controls mini-loop is a small “pipe shaped” device approximately 4-1/2” by 1” and is designed to be buried in the ground to detect vehicles.

The DSP-55 can be used as either a safety loop or free exit loop detector. **It should not be used as a safety loop if used with a mini-loop.** It also has the flexibility to be either “fail-safe” or “fail-secure”.

The DSP-55 has three solid-state FET outputs called A, B and -B outputs. The two B outputs are “normal” and “inverted”. These combinations of outputs allow for the DSP-55 to be easily interfaced to a wide variety of control boards.

The DSP-55 has 10 selectable sensitivity settings and uses a 10-position DIP switch to configure the detector. This includes delay or extension timing functions and pulse on entry or pulse on exit features. This makes the DSP-55 very flexible and versatile for those installations that need a little more than a standard detector.

Features

- Can be connected to a standard inductive loop as well as Diablo Controls mini-loops.
- Small profile, perfect for many installations.
- Three Solid State outputs.
- Fail-safe or Fail-secure operation.
- Wide low-voltage operation
- Separate Power/Fail and Detect LEDs.
- B Outputs can be presence, pulse on entry, pulse on exit, or loop fail.
- Flicker display shows occupancy of the detection zone when operating in a pulse mode.
- Delay or extension time is possible.

Switch	Function							
1	OFF	Norm	ON	2 Sec.	OFF	2 Sec.	ON	5 Sec.
2	OFF		OFF	Delay	ON	Extend	ON	Extend
3	OFF	Fail-Safe			ON	Fail-Secure		
4	OFF	Normal Sensitivity			ON	Sensitivity Boost		
5	OFF	B	ON	B Entry	OFF	B Exit	ON	B Fail
6	OFF	Pres	OFF	Pulse	ON	Pulse	ON	Output
7	OFF	Normal Presence			ON	Extended Presence		
8	OFF	Inductive Loop			ON	Mini-Loop		
9	OFF	High	ON	Med	OFF	Med	ON	Low
10	OFF		OFF	High	ON	Low	ON	

SPECIFICATIONS

Loop Inductance:	20 µH to 1500 µH (including lead-in)
Operating Temperature:	-35°F to 165°F (-37°C to 74°C)
Operating Voltage:	8 volts to 35 volts DC
Operating Current:	Without call is 31 ma maximum With a call is 40 ma maximum
Output Ratings:	Solid State Outputs: 250 milliamps @ 30 volts
Enclosure:	Impact resistant plastic 2.375” (H) x 0.86” (W) x 2.25” (D) 60.4 mm (H) x 22 mm (W) x 58 mm(D)

DIABLO CONTROLS, INC.
Pros Who Know Trust Diablo

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SELECTABLE FEATURES

Sensitivity Switch: This detector has a 10-position rotary sensitivity switch. The unit is shipped in the 5 position which is the normal sensitivity level. Sensitivity can be adjusted up or down from this level to accommodate different loop sizes or mini-loops.

Setting	0	1	2	3	4	5	6	7	8	9
%ΔL/L	0.48	0.32	0.24	0.16	0.12	0.08	0.06	0.04	0.03	0.02
Response Time	70 ms ± 10 ms							140 ms ± 20 ms		

Solid State Output A Control: Effects output A only.

1	2	Function
OFF	OFF	Output A has normal presence
ON	OFF	Output A has 2 seconds of delay
OFF	ON	Output A has 2 seconds of extension
ON	ON	Output A has 5 seconds of extension

Failure Operation: In fail-safe, the detector will output a detect when the loop circuit is failed. In fail-secure, the detector will not output a detect when the loop circuit is failed. Set DIP switch 3 to off to operate in fail-safe mode. Set the switch to on to operate in fail-secure mode. Note: Never use a fail-secure detector for a safety loop.

3	Function
OFF	Output A operates in the Fail-Safe mode
ON	Output A operates in the Fail-Secure mode

Sensitivity Boost: Set DIP switch 4 to off to operate with normal sensitivity. Set DIP switch 4 to on to automatically boost sensitivity during a call to improve detection of high-bed vehicles and truck/trailer combinations. Sensitivity boost is not applicable to most situations.

4	Function
OFF	Detector uses normal sensitivity
ON	Detector increases sensitivity once detection has occurred

Solid State Output B Control: Effects output “B” only.

5	6	Function
OFF	OFF	B output is normal presence output
ON	OFF	B output is an “Entry“ pulse
OFF	ON	B output is an “Exit” pulse
ON	ON	B output is a “Fail” condition

Extended Presence Time: Set DIP switch 7 to off to hold a vehicle’s presence for about 60 minutes before tuning it out. Set the switch to on to hold it significantly longer, perhaps up to a few days.

7	Function
OFF	Normal detection hold time
ON	Extended detection hold time

SELECTABLE FEATURES (Continued)

Loop Type: Set DIP switch 8 to off to operate with a normal inductive loop. Set the switch to on to operate with a Diablo Controls mini-loop. The mini-loop mode will always be an entry pulse. As such, it is perfect for free exit operation. Never use the mini-loop as a safety loop.

8	Function
OFF	Normal inductive loop
ON	Diablo Controls mini-loop

Frequency: Frequency can be selected using switches 9 and 10.

9	10	Function
OFF	OFF	Highest loop frequency
ON	OFF	Medium highest loop frequency
OFF	ON	Medium lowest loop frequency
ON	ON	Lowest loop frequency

INDICATORS

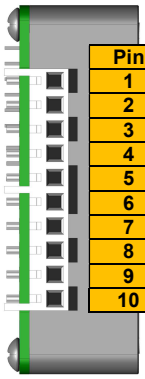
Green Power LED: The LED will be on steady to indicate the detector is powered and operating normally. If the LED is not on solid, it is indicating a current or prior fault.

Fault	Display for Current	Display for Prior
Low Voltage	2 Hz with 50% duty cycle	NONE
Open Loop	1 flash ON every 2s	1 flash OFF every 2s
Shorted Loop	2 flashes ON every 2 sec	2 flashes OFF every 2 sec
Large Change	3 flashes ON every 2 sec	3 flashes OFF every 2 sec

Red Detect A LED: The LED will turn on when a vehicle is over the loop detection area. If delay is programmed, the LED will blink slowly during the delay interval. If extension is programmed, the LED will blink fast during the extension interval.

Red Detect B LED: The LED will turn on when the output B is active. If a pulse mode is selected, the LED will flicker while a vehicle is in the detection zone and the output is inactive.

CONNECTOR PINS



Pin	Function
1	Loop or Mini-Loop
2	Loop or Mini-Loop
3	Power +
4	N/C
5	N/C
6	Output B
7	Output B Inverted
8	Output A
9	Power +
10	Power - and Output common