

DIABLO

CONTROLS DSP-55 Loop and Mini
Loop Vehicle Detector



DIABLO CONTROLS DSP-55 Loop and Mini Loop Vehicle Detector Owner's Manual

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DIABLO CONTROLS DSP-55 Loop and Mini Loop Vehicle Detector



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.

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

Specifications

- Loop Inductance: Not specified
- Operating Temperature: Not specified
- 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) inches / 60.4 mm (H) x 22 mm (W) x 58 mm (D)

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.

Product Information

The DSP-55 Loop and Mini-Loop Vehicle Detector is a compact vehicle detector that operates on a wide voltage

range of 8 to 35 volts DC, making it suitable for various installations including solar applications. It can be connected to standard inductive loops or Diablo Controls mini-loops, offering flexibility in detection methods. The detector features three solid-state outputs, fail-safe or fail-secure operation modes, and separate Power/Fail and Detect LEDs for easy monitoring.

Installation

1. Connect the DSP-55 to the desired loop configuration based on your installation requirements.
2. Ensure proper power supply within the voltage range of 8 to 35 volts DC.

Configuration

1. Use the 10-position DIP switch to set sensitivity levels and customize delay or extension timings.
2. Adjust the sensitivity switch to accommodate different loop sizes or mini-loops.

Output Settings

1. Configure the solid-state outputs A, B, and -B based on your control board requirements.
2. Output B can be set to presence, pulse on entry, pulse on exit, or loop fail modes.

Monitoring

1. Monitor the operation using the Flicker display that shows occupancy of the detection zone in pulse mode.
2. Use the separate LEDs for Power/Fail and Detect status indication.

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
% Δ L/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 \pm 10 ms							140 ms \pm 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

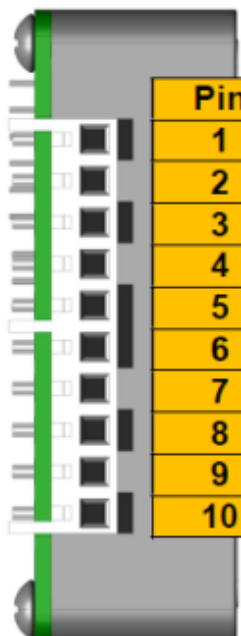
Red Detect A LED:

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

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FAQS

Q: Can the DSP-55 be used with solar-powered systems?

A: Yes, the DSP-55 operates on a low voltage range ideal for solar applications.


Q: How many solid-state outputs does the DSP-55 have?

A: The DSP-55 has three solid-state FET outputs named A, B, and -B.

Q: What are the different functions of the sensitivity switch?

A: The sensitivity switch offers 10 selectable settings to adjust sensitivity levels for different loop sizes or mini-loops.

Documents / Resources

	<p>DIABLO CONTROLS DSP-55 Loop and Mini Loop Vehicle Detector [pdf] Owner's Manual DSP-55 Loop and Mini Loop Vehicle Detector, DSP-55, Loop and Mini Loop Vehicle Detector, Mi ni Loop Vehicle Detector, Loop Vehicle Detector, Vehicle Detector</p>
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References

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