

# DSP-19

## Low Power Loop and Free-exit probe Vehicle Detector



The DSP-19 is specifically designed to be installed into a LiftMaster® model CSW24 operator or other models that use the same plug-in loop detector. The very low current draw and low voltage range is ideal for solar applications.

The DSP-19 can be connected to a standard inductive loop or one of Diablo Controls free-exit probes. The Diablo Controls free-exit probe is a small “pipe shaped” device approximately 4-1/2” by 1” and is designed to be buried in the ground to detect vehicles. **If the free-exit probe feature is turned on, the detector cannot be used as a safety detector as there is no presence detection in this mode of operation.** Contact Diablo Controls for more information on the free-exit probe.

The DSP-19 can be used as either a safety loop or free exit loop detector. It also has the flexibility to be either “fail-safe” or “fail-secure”.

The DSP-19 has a single solid-state open-drain FET output capable of sinking more than 250 milliamps.

The DSP-19 has 10 selectable sensitivity settings and uses a 6-position DIP switch to configure the detector. This includes the Diablo Controls free-exit probe selection as well as sensitivity boost, extended presence and fail-safe/fail-secure operation. This makes the DSP-19 very flexible and versatile for those installations that need a little more than a standard detector.

### Features

Extremely low power. Less than 1ma of current draw in the non-detect state.

- ❖ Can be connected to a standard inductive loop as well as Diablo Controls free-exit probes.
- ❖ Single Solid State Open-Drain output that can sink over 250 milliamps.
- ❖ Front switch selectable Fail-safe or Fail-secure operation.
- ❖ Wide operating voltage range with extended low-voltage operation.
- ❖ Sensitivity Boost for applications detecting semi-trucks.
- ❖ Extended Presence able to hold most calls for more than 12 hours.



DSP-19 Web Page

Switch	Function							
1	OFF	High	ON	Med	OFF	Med	ON	Low
2	OFF		OFF	High	ON	Low	ON	
3	OFF	Inductive Loop			ON	Free-exit probe		
4	OFF	Normal Presence			ON	Extended Presence		
5	OFF	Normal Sensitivity			ON	Sensitivity Boost		
6	OFF	Fail-Safe			ON	Fail-Secure		

### 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:**
  - Sensitivities 0-6: Without call is 1.00 ma maximum  
With a call is 26.00 ma maximum
  - Sensitivities 7-9: Without call is 1.60 ma maximum  
With a call is 26.00 ma maximum
- Output Ratings:** Open-Drain Solid State Output: 250 milliamps @ 30 volts
- Enclosure:** Impact resistant plastic  
2.362” (H) x 0.866” (W) x 2.008” (D)  
60.0 mm (H) x 22.0 mm (W) x 51.0 mm(D)



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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 free-exit probes.

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	160 ms ± 130 ms						200 ms ± 140 ms			

**Frequency:** Frequency can be selected using switches 1 and 2.

1	2	Function
OFF	OFF	Highest loop frequency
ON	OFF	Medium highest loop frequency
OFF	ON	Medium lowest loop frequency
ON	ON	Lowest loop frequency

**Loop Type:** Set DIP switch 3 to off to operate with a normal inductive loop. Set the switch to on to operate with a Diablo Controls free-exit probe. The free-exit probe mode will always be an entry pulse. As such, it is perfect for free exit operation. Never use the free-exit probe as a safety loop.

3	Function
OFF	Normal inductive loop
ON	Diablo Controls free-exit probe

**Extended Presence Time:** Set DIP switch 4 to off to hold a vehicle's presence for about 30 minutes before tuning it out. Set the switch to on to hold it significantly longer, perhaps up to a few days.

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

**Sensitivity Boost:** Set DIP switch 5 to off to operate with normal sensitivity. Set DIP switch 5 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.

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

#### SELECTABLE FEATURES (Continued)

**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 6 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.

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

#### INDICATORS

**Green Power LED:** The LED will be on blip on once every two seconds to indicate the detector is powered and operating normally in the low power mode. The LED will be on solid when there is possible activity over the loop. If the LED is not in one of these two modes, 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 2sec	1 flash OFF every 2sec
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 LED:** The LED will turn on when a vehicle is over the loop detection area.

#### CONNECTOR PINS

##### Rear Molex Connector

Pin	Function
1	Loop or Free-exit probe
2	Loop or Free-exit probe
3	No Pin
4	N/C
5	N/C
6	N/C
7	N/C
8	Power - and Output common
9	Power +

##### Side Output Connector

Pin	Function
1	Open-Drain Output
2	Common

#### ORDERING INFORMATION

**DSP-19** Only one model available

Visit our Website at [www.diablocontrols.com](http://www.diablocontrols.com) for the most current information on all of our products. Specifications are subject to change.

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