

DSP-19

Loop and Mini-Loop Vehicle Detector



The DSP-19 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-19 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. **If the mini-loop 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 mini-loop.

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 mini-loop 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

- ❖ Can be connected to a standard inductive loop as well as Diablo Controls mini-loops.
- ❖ Small profile, perfect for many installations.
- ❖ 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.
- ❖ Separate Power/Fail and Detect LEDs.
- ❖ Sensitivity Boost for applications detecting semi-trucks.
- ❖ Extended Presence able to hold most calls for more than 12 hours.

| Switch | Function | | | | | | | |
|--------|----------|--------------------|-----|------|-----|-------------------|----|-----|
| 1 | OFF | High | ON | Med | OFF | Med | ON | Low |
| 2 | OFF | | OFF | High | ON | Low | ON | |
| 3 | OFF | Inductive Loop | | | ON | Mini-Loop | | |
| 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: | Without call is 31 ma maximum With a call is 40 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 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 | | | |

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 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.

| 3 | Function |
|-----|---------------------------|
| OFF | Normal inductive loop |
| ON | Diablo Controls mini-loop |

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 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 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 Mini-Loop |
| 2 | Loop or Mini-Loop |
| 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 for the most current information on all of our products. Specifications are subject to change.



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Pros Who Know Trust Diablo