



Features

- **Switches** – All options are switch selectable from front panel switches
- **Loop Size** – Works on any in-ground inductive loop from 20 to 1500 μ H.
- **Indicators** – Two separate channel detection LEDs and a single green power LED.
- **Intelligent Power Protection** – The DSP-20 is protected from damage if plugged into a higher voltage. No need to change a fuse or reset a circuit breaker. Simply plug the detector into the proper voltage and it works
- **Power** – 10 to 30 Volts AC or DC (20 mA max). There are 110 VAC and 220 VAC versions available.
- **Reset** – Changing any unit DIP switch will reset the entire unit. Changing any per channel DIP switch will reset just that channel.
- **Noise Tolerant** – Advanced channel scanning technology that helps reduce and mitigate sources of interference.

DSP-20 Vehicle Detector with Directional Logic

A New Plug and Play "Micro" Detector

Overview

The DSP-20 is a two channel vehicle detector with built-in directional logic controls. Front panel switches allows the user to select between two independent channels or directional logic mode.

Switches

Switch 1) Dual Channel (OFF) / Directional Logic (ON):

In the dual channel mode, each channel operates individually as a separate detector channel. In the directional logic mode, the output will energize only after a vehicle is detected by one loop and then, while still being detected by the first loop, is detected by the other loop. The channel with the first detection is the one that will energize when the other loop has detection as well.

Switch 2) Fail Safe (OFF) / Fail Secure (ON):

In fail safe operation, the detector will energize the relay whenever the associated loop is determined to be in failure. In fail secure mode, the relay output will be de-energized. In either instance, the red LED will blink indicating failure on this channel. A channel in the pulse mode of operation is always in the fail secure mode.

Switch 3) Normal Presence (OFF) / Extended Presence (ON):

In normal presence, the detection of a typical vehicle can be held for about an hour. In extended presence, the same vehicle would be held for about 18 hours.

Switch 4) Normal Sensitivity (OFF) / Sensitivity Boost (ON):

In normal sensitivity, the detector will honor its associated sensitivity switches. Sensitivity boost can be used in special situations to insure complete detection of high-bed vehicles.

Switches 5/9) Presence (OFF) / Pulse (ON):

Each channel can be selected for presence or pulse operation. In presence mode, the relay will be energized for as long as the vehicle remains over the loop. In pulse mode, the relay will be energized for 150 ms immediately after a vehicle is first detected. There will be no other pulses until the vehicle completely leaves the loop area.

Switches 6+7/10+11) Sensitivity:

Each channel has two switches that can select one of four levels of sensitivity: low, medium low, medium high and high.

Switch 8/12) Frequency:

Automatically tunes each channel within one of two operating ranges.



Pros Who Know Trust Diablo

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Indicators

Green Power LED: The green power LED will be on whenever the input voltage is within the proper. It will blink if outside the range.

Momentary Off/On: All three LEDs will turn off momentarily and then back on momentarily as a lamp test each time the unit is reset

Red Channel LEDs: The red LEDs will indicate by channel as follows:

Off: Currently no vehicle detection.

On: A vehicle is currently present in the loop detection area. This is true regardless of the Pulse/Presence switch setting. The relay will output a leading pulse, but the LED will still indicate presence.

Slow Blink: (1 Hz at 50% duty cycle)
The unit has detected an open loop failure on this channel.

Fast Blink: (5 Hz at 50% duty cycle)
The unit has detected a shorted loop failure on this channel.

Long Blink with Two Fast Blinks: The unit has currently detected a large frequency change on this channel.

Two Fast Blinks: This is the fail memory indication by channel. The unit will indicate this instead of the OFF indication whenever a channel has detected a loop failure, but has recovered. It will indicate this until a reset has occurred on this channel.

Directional Logic

The LEDs and relays behave differently when the unit is in the Directional Logic mode.

When a vehicle enters loop A (channel 1), the relay is not immediately energized. Instead, channel 1's LED will begin blinking at 1 Hz and 90% duty cycle indicating that direction has now been armed. When the vehicle straddles both loops A and B, the first channel relay is energized and the first LED becomes solid and second channel LED blinks at 1 Hz 20% duty cycle. When the vehicle exits the first loop and is solely on the second loop, the first channel's LED turns off while the second continues to blink. When the vehicle leaves the entire area, both LEDs are turned off and the relay is de-energized. Of course, if the vehicle arrives from the other direction, the reverse is true.

If the channel is set to the pulse mode, a pulse will be generated at the leading edge of a vehicle straddling both loops and no further pulses will be allowed until both loops are cleared and a new vehicle is detected.

If either channel detects a loop failure, all directional logic is aborted and the outputs are disabled until the loop fault is corrected.

Operating Temperature: -35°F to 165°F (-37°C to 74°C)

Ordering Information: Standard parts numbers are as follows:

DSP-20-LV	10 to 30 Volts, AC or DC
DSP-20-117	117 Volts AC
DSP-20-230	230 Volts AC

Pin Outs

Pins	DSP-20	DSP-20-A	DSP-20-R	DSP-20-B	DSP-20-N
1	Power	Power	Power	Power	Power
2	Neutral	Neutral	Neutral	Neutral	Neutral
3	Ch2 Common	Ch2 Common	Ch2 N.O.	Ch2 N.O.	Ch1 Loop
4	Earth Ground	Earth Ground	No Connection	Ch2 Common	Ch1 Loop
5	Ch1 Common	Ch1 Common	Ch1 Common	Ch1 N.O.	Ch2 Loop
6	Ch1 N.O.	Ch1 N.O.	Ch1 N.O.	Ch1 Common	Ch2 Loop
7	Ch1 Loop	Ch1 Loop	Ch1 Loop	Loop A	Ch2 N.O.
8	Ch1 Loop	Ch1 Loop	Ch1 Loop	Loop Common	Ch2 Common
9	Ch2 Loop	Ch2 Loop	Ch2 Common	Loop B	Earth Ground
10	Ch2 Loop	Ch2 Loop	Ch2 Loop	Ch1 N.C.	Ch1 N.O.
11	Ch2 N.O.	Ch2 N.O.	Ch2 Loop.	Ch2 N.C.	Ch1 Common

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Page 2 of 2

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Specifications are subject to change.

DSP-20_CUT_B 2/13/14



Veteran Owned & Operated



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