

## DSP-20

### Dual Channel Vehicle Detector



#### Features

- Directional Logic.
- Advanced technology with superior noise tolerance.
- Selectable fail-safe or fail-secure operation.
- Selectable Presence or Pulse operation.
- 4 selectable sensitivity settings and sensitivity boost allow for a wide range of uses.
- Loop monitoring provides a fault display when a loop failure is detected.
- Fault memory gives a unique display when a fault has occurred but the system is currently functioning properly.
- Flicker display shows occupancy of the detection zone after a pulse output has been generated.

The DSP-20 detector is designed to be a compact general purpose dual channel inductive loop vehicle detector for the parking and access control industries. Even though it is a compact detector, it is not short on features.

The DSP-20 can operate as two independent channels or in a directional logic mode that allows the detector to activate an output based on the vehicle's direction of travel.

The DSP-20 is a dual channel detector that uses advanced channel scanning technology to provide superior noise tolerance. The scanning technology allows for placement of loops closer together (even overlapping) than ever possible with single channel detectors.

Fail-safe or fail-secure mode of operation is user selectable from the front panel for channels operating in the presence mode. The pulse mode of operation is always fail-secure.

The DSP-20 continually monitors the loop circuit looking for conditions that would signify a fault in the loop circuit and displaying the type of fault identified. This helps quickly identify open or shorted loops. Fault memory alerts the user to past faults that have automatically been recovered from.

Diablo Controls' unique flicker display helps insure correct operation of a channel when it is operating in the pulse mode. The channel's detect LED will turn on while the pulse is being output then display the flicker mode while the channel is still detecting the vehicle. This allows easy identification of a locked up channel operating in the pulse mode.

The DSP-20 is available in three different operating voltages and four different pin outs. This allows you to select the detector that exactly matches your installation instead of rewiring your installation to match the detector that you have.

## DSP-20 Dual Channel Vehicle Detector with Directional Logic

### SELECTABLE FEATURES

**Presence:** When the presence mode of operation is selected, the output will remain activated as long as a vehicle is in the detection zone. This feature is activated for each channel individually.

If the detector is in the direction logic mode, the first channel to detect the vehicle will activate its output when the second loop detects the vehicle while the first channel is still detecting the vehicle.

**Extended Presence:** 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. This feature is activated for both channels at the same time.

**Pulse:** The pulse mode used is commonly referred to as Pulse On Entry. If the detector is in the independent channels mode, a channel will output a pulse when a vehicle is first detected and will not output again until the loop is no longer occupied. This feature is activated for each channel individually.

If the detector is in the direction logic mode, the first channel to detect the vehicle will output a pulse when the second loop detects the vehicle while the first channel is still detecting the vehicle. The detector will not output another pulse until both loops are no longer occupied.

**Fail Safe:** When a channel is in the presence mode of operation and a loop failure is detected on that channel, the output for that channel will stay activated during the failure. This feature is activated for both channels at the same time.

**Fail Secure:** When a channel is in the presence mode of operation and a loop failure is detected on that channel, the output for that channel will stay deactivated during the failure. This feature is activated for both channels at the same time.

**Sensitivity Boost:** Increases the sensitivity of a channel after initial detection. This feature is useful in the detection of high-bed vehicles. This feature is activated for both channels at the same time.

### INDICATORS

**Green Power LED:** The green power LED will be on whenever the input voltage is sufficient for proper operation. It will blink if the voltage is too low for reliable operation.

**Red Channel LEDs:** The two red LEDs will indicate the status of each channel. Occupancy, Pulse outputs, Loop Failures, and Past Failures are all displayed on a per channel basis.

**Indicator Test:** All three LEDs will turn on and then off momentarily as a lamp test each time the unit is reset.

### SPECIFICATIONS

**Loop Inductance:** 20µH to 1500µH (including lead-in inductance)

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

**Operating Voltages:**  
10 volts to 30 volts DC

**Operating Current:**  
10-30 volts DC/AC - 65 milliamps maximum. 50 milliamps typical.

**Sensitivity:** There are four sensitivities selectable during presence or pulse modes of operation.

|             |           |
|-------------|-----------|
| Low         | .50% ΔL/L |
| Medium Low  | .10% ΔL/L |
| Medium High | .05% ΔL/L |
| High        | .02% ΔL/L |

**Frequency Settings:** There are two settings per channel. The actual loop frequency is dependent on loop circuit inductance. The detector uses a channel scanning technology to minimize channel to channel interference.

**Output Relay Rating:** The output relay for each channel is rated for switching up to 7 amps

**Pulse Output:** 150ms on period followed by a 150ms off period before the next pulse can begin

### ORDERING INFORMATION

#### DSP – 20 – LV

#### Operating Voltage

LV 10 to 30 Volts DC

| Pins | Diablo       |
|------|--------------|
| 1    | Power        |
| 2    | Neutral      |
| 3    | Ch2 Common   |
| 4    | Earth Ground |
| 5    | Ch1 Common   |
| 6    | Ch1 N.O.     |
| 7    | Ch1 Loop     |
| 8    | Ch1 Loop     |
| 9    | Ch2 Loop     |
| 10   | Ch2 Loop     |
| 11   | Ch2 N.O.     |



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