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.

DSP-20 Page

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 channels 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 configurations: Normally Open relay contacts, Normally Closed relay contacts, or Solid-State outputs. This allows you to select the detector that matches your installation.

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 directional 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 directional 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.

Directional Logic: See Presence and Pulse above to see how this feature modifies the detectors operations in each of these modes.

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.

SELECTABLE FEATURES (Continued)

Sensitivity: Selectable per channel.

Low	Hi	-ΔL/L	Sensitivity
OFF	OFF	0.50%	Low
ON	OFF	0.10%	Medium Low
OFF	ON	0.05%	Medium High
ON	ON	0.02%	High

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:
Relays   DC - 10.5 volts to 35 volts
            AC - 9 volts to 28 volts
Solid-State   DC - 7.5 volts to 35 volts
            AC - 6 volts to 28 volts

Operating Current:
Relay   120 milliamps maximum. 25 milliamps typical.
Solid-State   65 milliamps maximum. 25 milliamps typical.

Output Ratings:
Relay   1 amp @ 125 volts
Solid State   50 milliamps @ 30 volts

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

Response Time: 150 ms ±25 ms

Housing Size: 2.36" (H) x 1.75" (W) x 4.09" (D)
                 59.94 mm (H) x 4.45 mm (W) x 10.39 mm (D)

ORDERING INFORMATION

DSP-20-NO-LV   DSP-20 with Normally Open Relay Output
DSP-20-NC-LV   DSP-20 with Normally Closed Relay Output
DSP-20-SS-LV   DSP-20 with Solid-State Output

Pins	DSP-20-NO-LV	DSP-20-NC-LV	DSP-20-SS-LV
1	Power / DC +	Power / DC +	Power / DC +
2	Neutral / DC -	Neutral / DC -	Neutral / DC -
3	Ch2 Common	Ch2 Common	Ch2 Emitter (-)
4	Earth Ground	Earth Ground	Earth Ground
5	Ch1 Common	Ch1 Common	Ch1 Emitter (-)
6	Ch1 Normally Open	Ch1 Normally Closed	Ch1 Collector (+)
7	Ch1 Loop	Ch1 Loop	Ch1 Loop
8	Ch1 Loop	Ch1 Loop	Ch1 Loop
9	Ch2 Loop	Ch2 Loop	Ch2 Loop
10	Ch2 Loop	Ch2 Loop	Ch2 Loop
11	Ch2 Normally Open	Ch2 Normally Closed	Ch2 Collector (+)

Visit our Website at www.diablocontrols.com for the most current information on all of our products. Specifications are subject to change.

866-395-6677
www.diablocontrols.com
sales@diablocontrols.com

DIABLO
CONTROLS
THE GOLD STANDARD