DSP-100 Vehicle Detector
Vehicle Detector with Optional Timing

The DSP-100 vehicle detector has been specifically designed to handle most traffic applications and is very tolerant of noise and cross-talk conditions. Working on virtually any size loop, the DSP-100 tunes itself automatically and provides constant tracking to deal with environmental changes. The DSP-100's inherent noise filtering algorithms allow it to work reliably in almost any electrical situation.

The DSP-100 is available with a relay or solid-state output. The "RT" and "ST" models have front-panel switches to select both extension and delay timing. The operation of the timing functions can be modified by using the Delay Inhibit (also known as Phase Green) input.

SPECIFICATIONS

Loop Inductance:	20µH to 1500µH (including lead-in inductance)
Operating Temperature:	-35°F to 165°F (-37°C to 74°C)
Operating Voltage:	90 to 140 VAC
Enclosure:	Extruded Aluminum
Dimensions:	3.500" (H) x 2.130" (W) x 4.231" (D) 88.90 mm (H) x 54.10 mm (W) x 107.47 mm (D)
Output Ratings:	Solid-State Open Collector, 30 mA max, 30 VDC max. Relay 3A, 150 VDC or 300 VAC
Connector:	Standard 10-pin MS. Pin assignments are shown below:

Pin	Function
A	AC Neutral
B	Relay Common or Emitter
C	AC Line
D	Loop
E	Loop
F	Relay Normally Open or Collector
G	Relay Normally Closed
H	Chassis Ground
I	Not Used
J	Delay Inhibit Input (a.k.a. Phase Green Input)

Features

❖ Works on any in-ground inductive loop from 20 to 1500 microhenries.

❖ Automatically compensates for loop and lead-in sizes.

❖ Small profile, perfect for many installations.

❖ Selectable fail-safe or fail-secure operation.

❖ Separate Power/Fail and Detect LEDs.

❖ Models with timing features available.

❖ Delay Inhibit Input available.

❖ Option to always time extension regardless of Delay Inhibit input state.

INDICATORS

Green Power LED: The green Power LED will be on steady to indicate the detector is operating and powered. In the case of a loop circuit failure, the green LED flashes slowly (twice per second) for an open loop circuit failure or fast (10 times per second) for a shorted loop circuit.

Red Detect LED: The red Detect LED will turn on when a vehicle is over the loop detection area. If delay is programmed, the LED will blink slowly during the delay interval. If extension is programmed, the LED will blink fast during the extension interval. NOTE: Delay and extension features are available on –RT and –ST models only.

Fail-Safe / Fail-Secure Display: Every time the detector is reset, the LEDs will indicate if the unit is set for fail-safe or fail-secure operation. For fail-safe, both LEDs will blink twice at a 500 ms rate. For fail-secure. Both LEDs will blink at a 50 ms rate for two second.

DIABLO CONTROLS, INC.
Pros Who Know Trust Diablo

DSP-100 Vehicle Detector with Optional Timing

USER SELECTABLE FEATURES

NOTE - Changing any of the function DIP switch settings automatically resets the detector and cancels any existing call output.

Frequency: There are four possible operating frequencies for each channel. The exact operating frequency is determined by the electrical characteristics of the loop circuit and the selected frequency setting. DIP switch 6 connects in the smaller capacitor and the DIP switch 5, the larger one. Both switches off will be the highest frequency setting and both on will be the lowest.

Frequency	Switch 6	Switch 5	Frequency Range
1	Off	Off	High
2	On	Off	Medium High
3	Off	On	Medium Low
4	On	On	Low

Pulse / Presence: Turn DIP switch 4 off to operate in presence mode. In this mode, the output will remain on as long as a vehicle is in the loop detection area. Turn DIP switch 4 on to operate in pulse mode. This mode will output a 125 ms pulse each time a vehicle enters the loop detection area. If the vehicle remains within the loop for two seconds, the detector will automatically retune making itself ready for the next vehicle to arrive.

Sensitivity: DIP switches 1, 2, and 3 can be set for a total of 8 different sensitivity levels. Most traffic applications can be handled with the sensitivity set at NORMAL (level 5). The change in ΔL/L (percent of change) and the response time at each sensitivity setting can be found in the table below.

	Level	ΔL/L	S1	S2	S4	Response Time
Lowest	1	1.28%	Off	Off	Off	88ms ±12ms
	2	.64%	On	Off	Off	88ms ±12ms
	3	.32%	Off	On	Off	88ms ±12ms
	4	.16%	On	On	Off	88ms ±12ms
Normal	5	.08%	Off	Off	On	88ms ±12ms
	6	.04%	On	Off	On	88ms ±12ms
	7	.02%	Off	On	On	88ms ±12ms
Highest	8	.01%	On	On	On	176ms ±24ms

Delay (Available only on -RT and -ST models): This is an interval between vehicle arrival and output activation. Delay time can be programmed from 0 to 63 seconds in one-second increments. To determine the current setting, add together the value of the switches that are turned on. During the delay interval, the CALL LED is flashed slowly. If the vehicle leaves before the delay interval times out, the output will not occur.
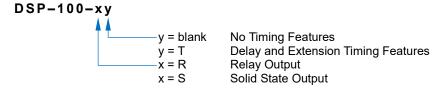
Extension (Available only on -RT and -ST models): This is an interval between vehicle exit and output deactivation. Extension time can be programmed from 0 to 15.75 seconds in quarter second increments. To determine the current setting, add together the value of the switches that are turned on. During this interval, the CALL LED is flashed rapidly. If another vehicle arrives before the extension times out, the output will not be dropped. Extension does not apply when in the pulse mode.

Failure Operation: The DSP-100 is factory shipped in the fail-safe mode. A fail-safe detector will output "detect" when the loop circuit is failed. This is useful on most calling detectors, stop bar detectors, and safety loops. Remove jumper J2 inside the detector, to operate in the fail-secure mode. The fail-secure mode is useful in counting detectors, speed detectors, and high-security areas or installations where containment is needed.

Green Extension (Available only on -RT and -ST models): Normal operation always honors any programmed extension time. By removing jumper J1 inside the detector, and connecting the AC green input for that phase to connector pin J (Delay Inhibit), the DSP-100 can be set to extend only during the green interval.

Delay Inhibit (Available only on -RT and -ST models): Normal operation always honors any programmed delay time. However, by connecting the AC green input for that phase to connector pin J (Delay Inhibit), the DSP-100 will delay only when the green is not active. During the green interval, any programmed delay time will be ignored.

ORDERING INFORMATION

D S P – 1 0 0 – x y

y = blank	No Timing Features
y = T	Delay and Extension Timing Features
x = R	Relay Output
x = S	Solid State Output

Example: DSP-100-RT is a DSP-100 with a relay output and delay and extension timing
DSP-100-S is a DSP-100 with a solid-state output and no timing features

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

Veteran Owned & Operated

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

DIABLO CONTROLS, INC.

Pros Who Know Trust Diablo