MODEL H2

SINGLE CHANNEL LOOP DETECTOR

OPERATING INSTRUCTIONS

I General

The Model H2 is a single channel detector with a solid state Detect Output and a solid state Fail Output. ***Please verify source voltage before applying power.*** The Model H2 will operate on voltages between 8 and 30 VDC with a maximum current requirement of 45 mA.

II Indicators and Controls

i Power / Detect / Fail LEDs

The detector has one green and two red LED indicators used to provide indications of the detector's power status, output state, and/or loop failure conditions. The table below lists the various indications and their meanings.

Status	POWER LED (Green)	DETECT LED (Red)	FAIL LED (Red)
Off	No power	Detect Output Off	Loop OK
On	Power to detector	Detect Output On	N/A
Flash	N/A	2 Hz (50% duty cycle) Delay timing 4 Hz (50% duty cycle) Extension timing	1 Hz (50% duty cycle) Loop Failure One flash every five seconds Prior Loop Failure

ii Rotary Switch (Sensitivity)

The eight-position rotary switch selects one of eight (8) sensitivity levels as shown in the table below. 0 is lowest and 7 is highest, with normal (factory default) being 4. Use the lowest sensitivity setting that consistently detects the smallest vehicles. Using higher than necessary sensitivity levels may result in false detections.

Position	0	1	2	3	4 *	5	6	7
-ΔL/L	2.56%	1.28%	0.64%	0.32%	0.16% *	0.08%	0.04%	0.02%

* Factory default setting.

iii DIP Switches

Switch	OFF	ON	Factory Default
1	Frequency		OFF
2	*(See table in Frequency section)*		ON
3	Fail-Safe	Fail-Secure	OFF
4	No Boost	Sensitivity Boost	OFF
5	Detect Output Delay		OFF
6	*(See table in Output Delay section)*		OFF
7	Detect Output Extension		OFF
8	*(See table in Output Extension section)*		OFF

Frequency (DIP Switches 1 and 2)

When loops are located in close proximity to one another it may be necessary to select different frequencies for each loop to avoid loop interference, commonly known as crosstalk. DIP switches 1 and 2 can be used to configure the detector to operate at one of four frequencies corresponding to ***Low***, ***Normal, Medium***, and ***High*** as shown in the table below.

Switch	Frequency			
	Low (0)	Normal (1) *	Medium (2)	High (3)
1	ON	OFF *	ON	OFF
2	ON	ON *	OFF	OFF

* Factory default setting.

Fail-Safe / Fail-Secure (DIP Switch 3)

When DIP switch 3 is in the OFF position, the detector operates in Fail-Safe mode. If a loop fault occurs when operating in Fail-Safe mode the Detect Output is "ON".

When DIP switch 3 is in the ON position, the detector operates in Fail-Secure mode. If a loop fault occurs when operating in Fail-Secure mode the Detect Output is "OFF".

NOTES: Changing the setting of this DIP switch will reset the detector.

The factory default setting is OFF, Fail-Safe mode.

Sensitivity Boost (DIP Switch 4)

Sensitivity Boost is activated using DIP switch 4. When a vehicle is detected sensitivity is automatically "boosted" to a higher level. The higher sensitivity level remains until detection is dropped, at which time the sensitivity returns to the no-detect level. This feature provides protection against dropping detection when high bed vehicles pass over the loop.

NOTE: The factory default setting is OFF, no Sensitivity Boost.

Detect Output Delay (DIP Switches 5 and 6)

An Output Delay time of zero, two, five, or ten seconds can be programmed using DIP switches 5 and 6. Output Delay time is the time before the Detect Output activates following vehicle detection. If the Output Delay feature is programmed to a value other than zero the Detect Output is "ON" only if a vehicle is continuously detected for the programmed delay time. If vehicle detection is lost during the delay time period the delay timer is reset to zero. The next vehicle entering the loop detection zone starts a new delay time period. The Detect LED flashes at a two Hertz rate (50% duty cycle) during the delay time period.

Switch	Detect Output Delay Interval			
	Zero (0) Seconds *	Two (2) Seconds	Five (5) Seconds	Ten (10) Seconds
5	OFF *	ON	OFF	ON
6	OFF *	OFF	ON	ON

* Factory default setting.

Detect Output Extension (DIP Switches 7 and 8)

An Output Extension time of zero, two, five, or ten seconds can be programmed using DIP switch positions 7 and 8. Output Extension time is the time following the loss of detection before the Detect Output is dropped. If another vehicle enters the loop during the extension time period the extension timer is reset to zero, and a full extension time period follows the departure of the last detected vehicle. The Detect LED flashes at a four Hertz rate (50% duty cycle) during the extension time period.

Switch	Detect Output Extension Interval			
	Zero (0) Seconds *	Two (2) Seconds	Five (5) Seconds	Ten (10) Seconds
7	OFF *	ON	OFF	ON
8	OFF *	OFF	ON	ON

* Factory default setting.

III Detector Reset

The following actions perform Detector Reset:

1. Remove and reapply power.
2. Changing Fail-Safe / Fail-Secure setting. (DIP switch 3).
3. Momentarily connecting Pin 3 of the Molex connector to ground (0 to 2 VDC).

Detector Reset must be performed following any change in loop-operating frequency. Changes in Sensitivity, Sensitivity Boost, Delay time, or Extension time immediately take effect without the need to perform Detector Reset.

IV Failed Loop Diagnostics

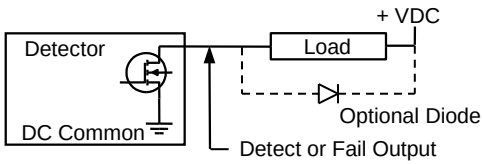
The Fail LED (red) provides loop failure information. The Fail LED is "OFF" when the loop inductance value is within tolerance, and no past out of tolerance conditions have existed. The Fail LED flashes at a one Hertz rate (50% duty cycle) when the current loop inductance value is out of tolerance. The Fail LED flashes at a rate of one flash every five seconds when a past out of tolerance loop condition has existed, but the current loop inductance value is within tolerance. This flash rate continues as long as the loop inductance value remains in tolerance. ***Resetting the detector clears the fail indication. A flashing Fail LED indication suggests the possibility of an intermittent loop connection. Reno A&E highly recommends soldering all loop connections with a proper soldering iron and rosin core solder.***

V Pin Connections

Pin	Function
1	Loop
2	Loop
3	Reset
4	No Connection
5	No Connection
6	Fail Output Drain
7	Fail Output Drain
8	Detect Output Drain
9	DC +
10	DC Common

NOTES: Pins 6 and 7 (Fail Outputs) are in a conducting state when power is applied and a functioning loop is connected to the detector. If power or the loop fails, the Fail Output will open to provide an indication of the failure.

The Detect and Fail Outputs are FET devices that sink current to DC Common (i.e. the FET Output switches the load to DC Common). To operate properly, the output must be connected as shown below:



If the output is being used to turn on an inductive device such as a relay, a snubber diode should be wired in parallel with the relay coil.