

#### IV. Detect / Fail Indicators:

The Model T-400 detector has a single two color (green / red) light emitting diode (LED) per channel to indicate a CALL output and/or the status of any current or prior loop failure conditions. A continuous ON (green) state indicates a CALL output. A continuous ON (red) state indicates that a current open loop failure condition or an inductance change condition of greater than +25% exists. This indication also generates a CALL output. A one Hz (red) flash rate indicates that a current shorted loop failure condition or an inductance change condition of greater than -25% exists. This indication also generates a CALL output. A flash rate of three 50 millisecond (red) flashes per second indicates a prior loop failure condition. A flash rate of three 50 millisecond (red) flashes per second followed by a single 750 millisecond (green) flash indicates a prior loop failure condition and a current CALL output (detect state).

If any channel has the audible detect feature activated, that channel's Detect / Fail LED will be illuminated in an orange state for any CALL output condition.

Detect / Fail LED	Meaning
Off	No Detect (No CALL Output)
Solid ON (Green)	Detect (CALL Output)
Solid ON (Orange)	Audible Detect Signal Activated, Detect (CALL Output)
Solid ON (Red)	Open Loop Failure or Inductance change condition of greater than +25% exists
One Hz flash rate (Red) (50% Duty Cycle)	Shorted Loop Failure or Inductance change condition of greater than -25% exists
Three 50 ms (Red) flashes per second	Loop Failure condition occurred but no longer exists
Three 50 ms (Red) flashes per second followed by a single 750 ms (Green) flash	Loop Failure condition occurred but no longer exists and Detect (CALL Output)
Three 50 ms (Red) flashes per second followed by a single 750 ms (Orange) flash	Loop Failure condition occurred but no longer exists, Audible Detect Signal Activated and Detect (CALL Output)

## Operating Instructions

# Model T-400 Series

## FOUR-CHANNEL DIP SWITCH PROGRAMMABLE LOOP DETECTOR

### I. General:

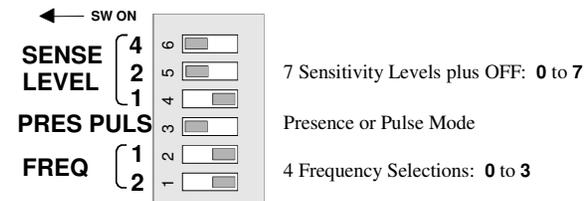
The Model T-400 is a scanning, four-channel, shelf mount loop detector. Once the detector is connected to an appropriately wired harness, it will begin to operate. The detector automatically tunes itself and is operational within two seconds after application of power or after being reset. Full sensitivity and hold time require approximately 30 seconds of operation. The detector is fully self-compensating for environmental changes and loop drift over the full temperature range and the entire loop inductance range. The Model T-400 is available with solid state or relay outputs.

The operation of each channel is independent and is programmed using one of four, front panel mounted, six-position DIP switches. Each channel has a single, dual color (green / red) Detect / Fail LED indicator. The LED provides an indication of the channel's output state and loop failure conditions. OUTPUT STATE conditions are indicated when the Detect / Fail LED is illuminated in a green state. LOOP FAILURE conditions are indicated when the Detect / Fail LED is illuminated in a red state. The Model T-400 also has a TEST mode that verifies proper operation of the outputs, LED indicators, DIP switches, and loop-oscillator circuitry.

### II. Operating Controls:

#### i. Front Panel Mounted Programming DIP Switches:

The four, six-position DIP switches located on the front panel that are labeled 1, 2, 3, and 4 affect each channel independently. To turn one of these DIP switches ON, push the switch to the left.



### **Frequency (FREQ) (DIP Switches 1 and 2):**

Each channel of the Model T-400 detector has four (4) frequency selections that allow altering the resonant frequency of the loop circuit. DIP switches 1 and 2 are used to select the frequency for a given channel. The values (1 and 2) to the left of the DIP switches are assigned to the switch when the switch is ON. If the switch is OFF, the switch has a value of zero (0). By adding the switch *ON* and *OFF* values, the two switches will combine for values from 0 to 3 that indicate one of the four Frequency selections. The following table is a reference for the switch settings and associated frequency selections.

**NOTE:** After changing any frequency switch setting(s), it is necessary to reset the detector by momentarily changing one of the other switch positions.

Frequency	Switch 2	Switch 1	Effective Value
HI *	OFF *	OFF *	0 + 0 = 0 *
MED HI	ON	OFF	1 + 0 = 1
MED LO	OFF	ON	0 + 2 = 2
LO	ON	ON	1 + 2 = 3

\* Factory default setting.

### **Presence / Pulse Mode (PRES PULS) (DIP Switch 3):**

DIP switch 3 controls the output mode of each channel.

**PRESENCE (PRES):** When the switch is in the *ON* position, Presence Mode is selected. Presence Mode provides a Call hold time of at least four minutes (regardless of vehicle size) and typically one to three hours for an automobile or truck. This is the factory default setting and the most common setting.

**PULSE (PULS):** When the switch is in the *OFF* position, Pulse Mode is selected. Pulse Mode will generate a single 125 millisecond pulse output for each vehicle entering the loop detection zone. Any vehicle remaining in the loop detection zone longer than two seconds will be tuned out providing full sensitivity for the vacant portion of the loop detection zone. Full sensitivity for the entire loop detection zone is recovered within one second following the departure of any vehicle that has occupied the loop detection zone longer than two seconds.

### **Sensitivity (SENSE LEVEL) (DIP Switches 4, 5, and 6):**

There are seven (7) selectable sensitivity levels plus OFF for each channel. The seven sensitivity levels and OFF setting are selected via DIP switches 4, 5, and 6 on each of the four front panel mounted six-position DIP switches. The values (1, 2, and 4) to the left of the DIP switches are assigned to the switch when the switch is ON. If the switch is OFF, the switch has a value of zero (0). By adding the switch *ON* and *OFF* values, the three switches will combine for values from 0 to 7 that indicate OFF or one of the seven Sensitivity Level selections. The following table is a reference for the switch settings and associated sensitivity selections.

**NOTE:** Changing the sensitivity level setting will RESET the detector channel.

Sense Level	-ΔL/L	Switch 4	Switch 5	Switch 6	Effective Value
0 (OFF)	OFF	OFF	OFF	OFF	0 + 0 + 0 = 0
1	0.64%	ON	OFF	OFF	1 + 0 + 0 = 1
2	0.32%	OFF	ON	OFF	0 + 2 + 0 = 2
3	0.16%	ON	ON	OFF	1 + 2 + 0 = 3
4	0.08%	OFF	OFF	ON	0 + 0 + 4 = 4
5	0.04%	ON	OFF	ON	1 + 0 + 4 = 5
6 *	0.02% *	OFF *	ON *	ON *	0 + 2 + 4 = 6 *
7	0.01%	ON	ON	ON	1 + 2 + 4 = 7

\* Factory default setting.

### **ii. Front Panel Mounted Pushbutton - Detector Reset:**

A front panel mounted pushbutton labeled **RESET** is used to reset the detector. To reset the detector, press the pushbutton.

### **iii. Front Panel Mounted Pushbutton - Audible Detect Buzzer:**

A front panel mounted pushbutton labeled **BUZZER** is used to enable an audible detect signal that is emitted any time a given channel's detection zone is occupied. To activate this feature, press the pushbutton. Only one channel can have this feature active at any given time. The first time the pushbutton is pressed, a short (50 millisecond) audible signal confirms the activation of the feature for Channel 1. The second time the pushbutton is pressed, two short (50 millisecond) audible signals confirm the activation of the feature for Channel 2. The third time the pushbutton is pressed, three short (50 millisecond) audible signals confirm the activation of the feature for Channel 3. The fourth time the pushbutton is pressed, four short (50 millisecond) audible signals confirm the activation of the feature for Channel 4. To deactivate this feature, press and hold the pushbutton for one second. A long (250 millisecond) audible signal confirms the deactivation of the feature. This feature will automatically turn off 15 minutes after activation.

**NOTE:** When operating in Pulse mode, the audible detect signal will cease if a vehicle occupies the detection zone for more than two seconds.

### **III. Reset:**

To reset the detector, press the pushbutton labeled **RESET**. Changing the position of any of an individual channel's front panel mounted programming DIP switches (except the Frequency switches) resets the channel. The detector can also be reset by the reapplication of power after a power loss.