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MODEL AX2-4-1C-CT

TWO CHANNEL LOOP DETECTOR INSTALLATION AND OPERATING INSTRUCTIONS

I. General

The Model AX2-4-1C is a two channel inductive loop detector that monitors two independent inductive loops and provides a separate relay output for each loop input (channel). The loops connected to Channels 1 and 2 are scanned (alternating on and off cycles), which eliminates crosstalk between loops connected to the same Model AX2-4-1C-CT detector.

Please verify source voltage before applying power. The Model AX2-4-1C is designed to operate on 12 VDC / 24 VDC / 24 VAC input power.

The detector is factory configured for Fail-Safe operation. The output state of either channel during a Power Failure or Loop Failure condition is Call (Detect).

II. Indicators and Controls

i. Power / Detect / Fail LEDs

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

Status	PWR (Power) LED	CH 1 / CH 2 DET (Detect) LED
OFF	No power or low power	No vehicle present and Loop OK
ON	Normal power to detector	Vehicle present (Detect)
Flash	N/A	1 Hz rate, 50% duty cycle - Shorted Loop 10 Hz rate, 50% duty cycle - Open Loop 3 Flashes per second - Prior Loop Failure (Loop has failed and the problem has been corrected.) NOTE: If a vehicle is detected, the Detect LED will turn ON even if a prior loop failure condition exists.

NOTE: If the supply voltage drops below 75% of the nominal level, the power LED will turn off, providing a visual indication of low supply voltage. Model AX2-4-1C-CT detectors will operate with supply voltage as low as 70% of nominal supply voltage.

ii. **Front Panel DIP Switches (Both Channels)**

Switch	ON	OFF	Factory Default
1	Frequency		OFF
2	<i>(See Table under Frequency Section)</i>		OFF
3	Pulse Mode	OFF	Off
4	Sensitivity Boost	OFF	Off
5	Sensitivity		ON
6	<i>(See Table under Sensitivity Section)</i>		OFF

Frequency (DIP Switches 1 and 2)

Loops connected to channels 1 and 2 of a Model AX2-4-1C-CT detector **cannot** crosstalk (i.e. interfere with each other). In situations where loop geometry forces loops to be located in close proximity to one another and the loops are connected to different detectors, it may be necessary to select different frequencies for each loop to avoid loop interference. DIP switches 1 and 2 can be used to configure the detector to operate at one of four frequencies corresponding to *Low*, *Medium / Low*, *Medium / High*, and *High* as shown in the table below.

NOTE: *After changing any frequency switch setting(s), the detector channel must be reset by momentarily changing one of the other switch positions or pressing the front panel RESET pushbutton.*

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

* Factory default setting.

Presence / Pulse Mode (DIP Switch 3)

Each channel has two modes of operation, Presence or Pulse. When in Pulse mode (DIP switch 3 set to *ON*), a 250 millisecond pulse is output each time a vehicle enters the loop detection area. When in Presence mode (DIP switch 3 set to *OFF*), the channel’s output operates in True Presence™ Mode and the detector channel will hold a Call output as long as a vehicle is present and power is not removed or reset applied. True Presence™ hold time applies only for normal size automobiles and trucks and for normal size loops (approximately 12 ft² to 120 ft²). The factory default setting is *OFF* (Presence Mode).

Sensitivity Boost (DIP Switch 4)

DIP switch 4 can be turned *ON* to increase sensitivity during the detect period without changing the sensitivity during the no detect period. The boost feature has the effect of temporarily increasing the sensitivity setting by up to two levels. When a vehicle enters the loop, the detector automatically boosts the sensitivity level. As soon as no vehicle is detected, the detector immediately returns to the original sensitivity level. This feature is particularly useful in preventing dropouts during the passage of high bed vehicles. The factory default setting is *OFF* (no Sensitivity Boost).

Sensitivity (DIP Switches 5 and 6)

Each channel has four (4) sensitivity levels. DIP switches 5 and 6 select one of the four sensitivity levels available as shown in the table below. Use the lowest sensitivity setting that will consistently detect the desired type(s) of vehicle(s) that must be detected. Do not use a sensitivity level higher than necessary.

Switch	Sensitivity Level (- Δ L/L)			
	0.32% (0)	0.16% (1) *	0.08% (2)	0.02% (3)
5	OFF	ON *	OFF	ON
6	OFF	OFF *	ON	ON

* Factory default setting.

III. Reset

Pushing the front panel mounted pushbutton labeled **RESET** will reset the detector. Changing any DIP switch position (except 1 or 2) will reset the individual detector channel. After changing the frequency selection switches, the detector channel or detector must be reset.

IV. Power Down Memory

When power is removed, the detector automatically remembers the status of the loop. During the loss of power, vehicles may enter or leave the loop detection area. When power is restored, the detector will correctly determine the current loop status and output a Call if a vehicle is in the loop detection area. If the loop detection area is vacant, a Call will not be output. (A power loss power dip of any duration will not bring a gate arm down onto cars as they wait at the gate). **IMPORTANT: After installing and applying power to the Model AX2-4-1C-CT detector, momentarily push the RESET button to clear the Power Down Memory. This initializes the detector to the loops that are connected and clears the memory of any previous loop information.**

V. Failed Loop Diagnostics

Each channel's **DET** (Detect) LED indicates whether or not the loop connected to the channel is currently within tolerance. If the loop is out of tolerance, the LED indicates whether the loop is shorted (one Hz flash rate) or open (10 Hz flash rate). If and when the loop returns to within tolerance, the **DET** (Detect) LED will flash at a three flashes per second rate to indicate that an intermittent loop fault has occurred and has been corrected. This flash rate will continue until another loop fault occurs, the detector is reset, or power to the detector is interrupted. If a vehicle enters the loop detection area while the **DET** (Detect) LED is indicating an intermittent loop failure, the **DET** (Detect) LED will turn on to indicate the presence of the vehicle.

VI. Pin Connections

Pin	Function
1	AC Line / DC +
2	AC Neutral / DC Common
3	Channel 2 Relay, Normally Open (N.O.)
4	No Connection
5	Channel 1 Relay, Common
6	Channel 1 Relay, Normally Open (N.O.)
7	Channel 1 Loop
8	Channel 1 Loop
9	Channel 2 Loop
10	Channel 2 Loop
11	Channel 2 Relay, Common