

# Operating Instructions

## Model C-1101-B, C-1201-B

Firmware Version 3.0

### TWO CHANNEL BICYCLE DETECTOR

#### I. General Description:

The Model C-1101-B and C-1201-B are designed to detect **all** vehicles with the added ability of differentiating bicycles from motorized vehicles, including motorcycles. The unique capability to identify bicycles from motorized vehicles allows the user to program bicycle min time and extension time (in the detector) for **bicycles only**, thus providing a safe passage time through the intersection. When the bicycle min time is set to 0 (zero) and a bicycle is detected passing through the parallelogram loop (required) the channel will output a 100 millisecond pulse. The pulse width can be increased with the extension timer. When the bicycle min time is not 0 and the phase is not green the channel's output is latched in the "CALL" state. When the phase green input becomes active the bicycle min time begins timing. When a bicycle passes through the bicycle loop during phase green the output is extended by the programmed extension time. **The detector's latched call, bicycle min time, and extension time respond only to bicycles.** The detector output functions as a standard presence detector without timing for motorized vehicles. The Model C-1101-B and the Model C-1201-B bicycle detectors can provide two outputs per channel. The primary output provides "CALL" outputs for all vehicles, including motorcycles and bicycles. The primary output can be programmed for Lane Line "LL" mode, which only outputs for bicycles. When turned ON the secondary output always provides a single pulse for each bicycle.

The Model C-1101-B is configured for 170/332 applications. 170/332 applications require a Phase Green Interface Module (Reno A&E Model PGI see page 4 for details).

The Model C-1201-B is configured for NEMA TS 1 / TS 2 applications.

#### II. Factory Default Settings:

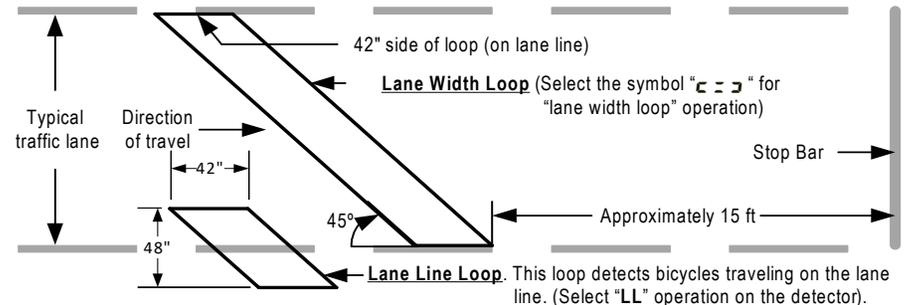
Function	Channel 1	Channel 2
Loop Configuration: (OFF, <b>C = C</b> or LL) *	<b>C = C</b>	<b>C = C</b>
Bicycle Initial Time: (0 - 999 seconds)	0	0
CALL Extension Time: (0 - 25.5 seconds)	0	0
Secondary Pulse Output	OFF	OFF
Option 1: L (Loop Inductance)	OFF (all channels)	
Option 2: Output Test	OFF (all channels)	
Loop Frequency: 8 Operating Frequencies	3	7

\*Lane width loop "**C = C**" provides a "CALL" output for all vehicles.  
Lane line loop "LL" provides a "CALL" output for bicycles only.

#### III. REQUIRED BICYCLE LOOP:

The Models C-1101-B & C-1201-B Bicycle Detectors require the parallelogram loop geometry.

The recommended bicycle loop is a Reno A&E performed loop (PLH or PLB). The preformed loop is installed across the entire lane width shown below. The 42 inch sides of the parallelogram loop should be on the lane lines.



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### How to View and Program Detector Functions:

- Press the CHAN switch to select the channel. The loop symbols  and  identify the selected channel.
- Step through the functions by pressing the FUNC switch.
- Press the ▲ (UP) or ▼ (DOWN) switch to make adjustments.
- To exit the PROGRAM mode and return to the NORMAL mode, press and hold the CHAN switch for one second.

Step

## IV. GENERAL CHARACTERISTICS:

The Model C-1101-B and the Model C-1201-B bicycle detectors are fully self tuning and do not require any sensitivity adjustment.

- The only adjustments are:
- 1.) Bicycle Min Time (0-999 seconds)
  - 2.) Bicycle Extension Time (0-25.5 seconds)
  - 3.) Secondary Pulse Output (Chan 3 and 4)
  - 4.) Loop Frequency

Adjustments are made using the push button switches and LCD display.

When the loop is vacant the LCD display indicates "- - -".

A normal size motorized vehicle is indicated by "CALL" and an illuminated LED for the channel.

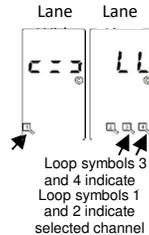
When the Bicycle Min Time is not zero, a motorcycle that has passed through the loop latches the "CALL" and is indicated by a flashing "CALL" and an illuminated LED. The latched motorcycle "CALL" is cleared immediately when either a normal size vehicle enters the loop, or the phase green becomes active. This insures motorcycles will be served even though the loop may be vacant at the time the phase is to be served.

## V. OPERATING INSTRUCTIONS:

Select the channel by pressing the CHAN switch. The loop symbols  and  identify the channel.  
Step through the functions by pressing the FUNC switch.  
Press the ▲ or ▼ switch to make adjustments.

### Step 1 Channel Off / Lane Width Mode / Lane Line Mode:

- When the channel is set to the "OFF" state the channel is disabled.
- When the Channel is set to "  " the detector outputs a call for all vehicles.
- When the channel is set to "LL" (Bicycle Only Mode) the detector outputs calls for bicycles only.
- Motorized vehicles are indicated by "CALL" and bicycle calls are indicated by "bc".



### Step 2 Bicycle Minimum Time:

Bicycle min time is indicated on the display by "PRESENCE". The bicycle min time is selected in one second steps. When set to 0 a 100 msec pulse will occur for each bicycle detected. Pulse can be extended with the extension time (Default value = 0 seconds)

### Bicycle Extension Time:

Bicycle extension time is indicated on the display by "EXTENSION". The bicycle extension time is selected in 0.1 second steps. The minimum value is zero. (Default value = 0 seconds).

### Step 4 Secondary Pulse Outputs:

When turned ON the secondary output always provides a single pulse for each bicycle. The secondary outputs are on channels 3 and 4 of a four channel detector. Using the secondary pulse outputs will require two slots in the detector rack.

### Step 5 Bicycle Counts:

The alternating message "bc" (0.2 seconds) and the three digit number "nnn" (2.0 seconds) indicate the number of accumulated bicycle counts since the last reset. Each bicycle passing over the parallelogram loop increments the count by one. The number can be reset by pressing either the UP or DOWN switch, or resetting the detector.

### Step 6 Option 1 (Buzzer):

This controls the "buzzer" feature. When turned "ON" the feature is active for both channels. Channel 1 is identified by a single beep. Channel 2 is identified by a double beep. Short beep(s) indicate motorized vehicles. Long beep(s) indicate bicycles.

### Step 7 Option 2 (Output Test):

When turned "ON" for a channel the "CALL" state is activated on the channel's primary output, and repeated pulses are activated on the channel's secondary output. The front panel LEDs indicate the output states.  
*Note: Options 1 and 2 are automatically disabled 15 minutes after the last actuation of any push button switch.*

### Step 8 Loop Inductance:

The display indicates the loop inductance value (Microhenries).

### Step 9 Loop Frequency:

The loop frequency is displayed in Kilohertz. (Normally in the range of 20-50 KHz)  
Pressing the ▲ or ▼ switch selects 1 of 8 loop operating frequencies.

### Step 10 Loop Fail:

The three digit number indicates the total number of loop failures that have occurred since the last reset or loss of power. A high number indicates a possible loose loop connection. (Loose terminal screw, etc.)

### Step 11 Firmware Version:

This is the firmware version in the microprocessor. (e.g. Cbc 3.0)

## RECOMMENDED LOOPS

The **PLH Preformed Loop** is constructed using 0.365" XLPE cable and is designed to be overlaid with asphalt or embedded in concrete.

The **PLB Preformed Loop** is constructed using 0.23" XLPE cable and is designed for installation in a 1/4 inch saw cut. The design provides for adjustment of the loop cable to adapt to variations in the perimeter of the saw cut. Remove sharp inside corners of the saw cut with a small chisel to protect the loop cable from damage. The lead-in cable can be supplied in any length necessary to provide a continuous run to the traffic cabinet. This eliminates the need for splicing a separate lead-in cable.

The **PLH Preformed Loop** or **PLB Preformed Loop** can be ordered for a 42 inch parallelogram loop to cover any lane width.

### Model PGI

The module Model PGI accepts up to four 120 VAC green signals. The 120 VAC signals are converted to four optically isolated low voltage logic outputs. The outputs are connected to the detector phase green inputs through RJ-11 connectors on both the Model PGI and the Model C-1101-B detector module.