How to use the NP2 + PLUS |

Plug the detector into an 11-pin relay base socket or wiring harness and the detector will light up the segment display screen with a factory setting of 5. Pull the desired vehicle onto the loop and you will see an array of red, yellow, and green LED's next to the display. This gives you the signal of the sensitivity strength of the detector. In most applications the setting of 5 should suit most applications but loop and vehicle size plays a part in the settings.

Adjusting the Sensitivity |

1. Remove the desired vehicle from the loop.
2. Press and hold down the up-arrow button until you see a flashing blue dot on the led segment screen and a single red led appear. This will put the detector in EZ-TUNE so the sensitivity settings can be adjusted. While in this mode no signal will be sent to the gate operator but **DO NOT PLACE A VEHICLE, EQUIPMENT OR PERSON IN THE PATH OF THE GATE!!**

3. Pull the vehicle directly onto the loop.
4. Use the UP and Down arrows to adjust the sensitivity to the desired level.
5. Ideally you will want the full array of LEDs to light up (2 red, 2 yellow, 2 green) for optimal detection.

6. Press the reset button and a single green LED will appear for 5 seconds to lock in the settings.
7. Test out the settings by running the vehicle over the loop to see if you get a full array of LEDs to appear.

Adjusting the Frequencies |

1. Press and hold down the down-arrow button until you see a flashing blue dot on the segment screen and a single green led will appear. This will put the detector in EZ-TUNE so the frequency settings can be adjusted.

2. Use the up and down buttons to select the desired frequency. The frequency numbers will flash on the segment display.
3. Alternate the frequency of each detector in the rack to prevent crosstalk.
4. To lock in the setting press the reset button and a single green LED will appear for 5 seconds to lock in the settings.

Additional Options |

There is a 6 position on the back of the detector for your site-specific needs. Press the reset button to implement the desired setting. If there is a fault 2 yellow LED's will appear and the letters O then C represents an open circuit, and the letter S then L represents a shorted loop.

Relay 2

Pulse Length – switch 4 provides for either a 250mS pulse length or a 500mS pulse length. Switch 4 in the OFF position provides 250mS (standard) pulse length Switch 4 in the ON position provides a 500mS pulse length.

Operating Mode – switches 5 and 6 determine the operating mode for Relay 2. The 4 modes are as follows-
Switch 5 and switch 6 OFF provides pulse-on-entry.
Switch 5 ON & switch 6 OFF provides pulse-on-leaving.
Switch 5 OFF & switch 6 ON provides for presence.
Switch 5 and switch 6 ON provides a fault output.

Front Panel Controls:

The NP2+ has three Front Panel pushbutton switches.

- UP / sensitivity programming mode.
- Press and hold for 3 seconds to enter sensitivity mode.
- UP and DOWN buttons may be used to step through sensitivity levels.
- DOWN / frequency programming mode.
- Press and hold for 3 seconds to enter frequency mode.
- UP and DOWN buttons may be used to step through the frequency selections.
- Reset – front panel reset performs a hard reset of the detector and resumes operation using the last programmed settings.

Indications:

Single digit 7 Segment Multifunction Display.

- In normal operation this display shows the current sensitivity level.
- In sensitivity programming mode the sensitivity is displayed and may be changed by manipulating the UP/DOWN pushbuttons.
- In frequency programming mode, the frequency of the loop oscillator in kHz is displayed. This frequency may be changed by manipulating the UP/DOWN pushbuttons. The display alternates digits to show the 'tens' digit, then the 'ones' digit and then a pause.
- When the detector is in fault, the display shows 'OC' for open circuit loop or 'SC' for short-circuited loop.
- When delaying a signal, the display will show 'dL' and when extending a signal 'En" will be displayed.

6 segment bargraph.

- 2 red, 2 yellow and 2 green segments.
- Shows depth of detection as vehicle pass over detection zone.
- Shows level of interference from adjacent loops.

Detect & Relay 2 Leds.

- Leds show status of both Relay outputs.

Additional Indications.

- When the detector is in fault, two yellow leds will be illuminated.
- When the detector is tuning to the loop, a green led will be illuminated.

Outputs:

The NP2+ has two relay outputs, a primary Relay 1 for normal detection operation and a secondary Relay 2 for additional functionality. Relay 1 is Fail Safe (provides a constant closure on power fail) Relay 2 is Fail Secure (no closure on power fail). Optional Fail Secure Relay 1 operation is available.

Output Rating:

Relay Contact Closure, 125VAC, 60VDC 1A.

Rear Panel DIP Switch

A six position DIP switch on the back of the unit allows the selection of additional operational modes.

Switch No.	OFF	ON
1	No Extend	5 Second Extend
2	No Delay	2 Second Delay
3	60 Minute Presence	Permanent Presence
4	20ms Pulse	500 Pulse

Switch 5	Switch 6	Relay 2 Function
OFF	OFF	Pulse on Entry
ON	OFF	Pulse on Leaving
OFF	ON	Presence
ON	ON	Fault

Supply Voltage:

12 to 24 volts AC or DC 1VA max, 60mA max.
Note: incorrect voltage supplied to the unit will not result in damage, the unit will simply not operate until correct voltage is supplied. No fuses need to be reset.

Inductance Range:

20uH to 1500uH.

Temperature Range:

-30 F to +180 F.

Lead-In Length:

up to 2500 ft. with proper lead-in and loop.

Mechanical:

3.25" H x 3.75" D x 1.375" W. incl.connector

Connector:

11P Amphenol Style

Pin #	Function
1	Power (+)
2	Power (-)
3	Relay 2 N.O.
4	Earth
5	Relay 1 Common
6	Relay 1 N.O.
7	Loop
8	Loop
9	Relay 2 Common
10	Relay 1 N.C.
11	Relay 2 N.C.

Note: The above connections are shown with correct power supplied and no vehicle present. [illegible] and workmanship for one year from date of shipment from the Northstar Controls L.L.C. factory.
Specifications are subject to change without notice.