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MODEL AVI-B

AUTOMATIC VEHICLE IDENTIFICATION (AVI) RECEIVER

INSTALLATION AND OPERATING INSTRUCTIONS

I General

Verify source voltage before applying power. The model designation indicates the input power required for the receiver and factory programmed code as follows.

Model AVI-B-x-n ← n = Code (e.g. 5240)

- **1** = 120 VAC
- **22** = 24 VAC
- **30** = 12 VDC / 24 VDC

The Model AVI-B Automatic Vehicle Identification (AVI) Receiver identifies vehicles equipped with a uniquely coded AVI transmitter and provides a relay contact closure. Two LEDs on the front panel indicate 1.) the presence of power (green LED) and 2.) a valid-coded transmitter within the loop area (red LED). The receiver is connected to a loop installed in the pavement. The AVI transmitter must be in close proximity to, or over, the loop for the receiver to respond. The receiver is factory programmed to identify a single specific transmitter code and does not require any adjustments or setup. The receiver is fully operational immediately upon application of power.

II Loop Requirements

Loop Area

The maximum area of the loop should not exceed 600 square feet.

Loop Turns

The receiver operates with any loop having one (1) or more turns of wire.

Loop Feeder Length

300 feet maximum.

Receiver Range

The transmitter must be in close proximity to, or over, the in-pavement loop.

Response Time

Once a transmitter with the same code as the receiver has been detected the AVI output will activate for a minimum of two (2) seconds.

Presence Time

Once a transmitter with the same code as the receiver has been detected the AVI output will remain activated as long as the transmitter is detected and for two (2) seconds after the transmitter departs the loop.

III Receiver Requirements

Power

Model AVI-B-1 - 89 to 135 VAC, 50/60 Hz, 3 Watts maximum

Model AVI-B-22 - 12 to 24 VAC, 50/60 Hz, 3 Watts maximum

Model AVI-B-30 - 12 to 24 VDC, 1.5 Watts maximum.

Relay Ratings

Relay contacts are rated for 6 Amps maximum.

Operating Temperature

-40°F to +180°F.

Connector

Front panel mounted MS3102A-18-1P.

IV Pin Connections (Reno A&E Wiring Harness Model 801-4)

Pin	Function	Wire Color
A	AC Neutral / DC Common	White
B	Relay Output - Normally Open (N.O.)	Brown
C	AC Line / DC +	Black
D	Loop	Red
E	Loop	Orange
F	Relay Output - Common	Yellow
G	No Connection	Blue
H	Chassis Ground	Green
I	No Connection	Violet
J	No Connection	Gray

V Loop Installation

The installation procedure for the AVI loop is the same as that of any other inductive loop. The AVI-B Receiver operates with any loop having one (1) or more turns of wire.

Select the loop size so the transmitter crosses directly over the loop. The loop area should not exceed 600 square feet and the feeder cable should not exceed 300 feet.

Reno A&E recommends installing the AVI loop using the same procedures as used when installing a conventional inductive loop. If both vehicle detection and AVI detection are required in the future the Model AVI-B can be replaced with a Model BT-AVI unit without any need to install a different loop in the pavement. If the detection requirement changes Reno A&E technical support is always available for assistance.

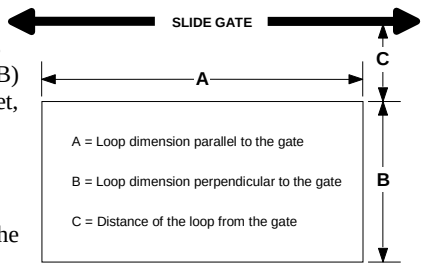
Vehicle detection characteristics of an inductive loop detector are influenced by the loop size and proximity to moving metal objects such as gates. If the loop is placed too close to a moving metal gate the detector may detect the gate. The diagram below is intended as a reference for the dimensions that will influence the detection characteristics.

General Rules

1. The useful detection height of a loop is approximately 2/3 the shortest leg (A or B) of the loop. Example: Short leg = 6 feet, Detection Height = 4 feet.

A =	6 ft	9 ft	12 ft	15 ft	18 ft	21 ft
C =	3 ft	4 ft	4.5 ft	5 ft	5.5 ft	6 ft

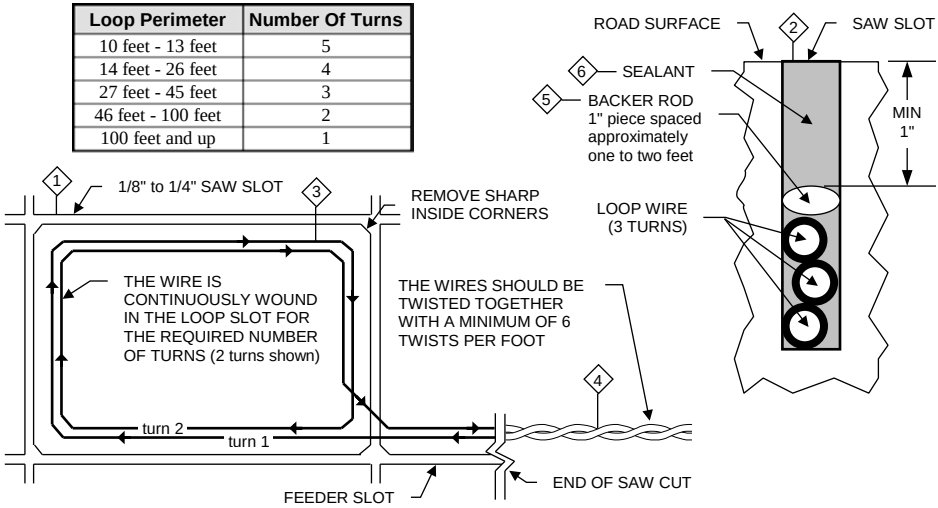
2. As the length of leg A is increased the distance C must also increase.



Loop Installation - Saw Cut Type

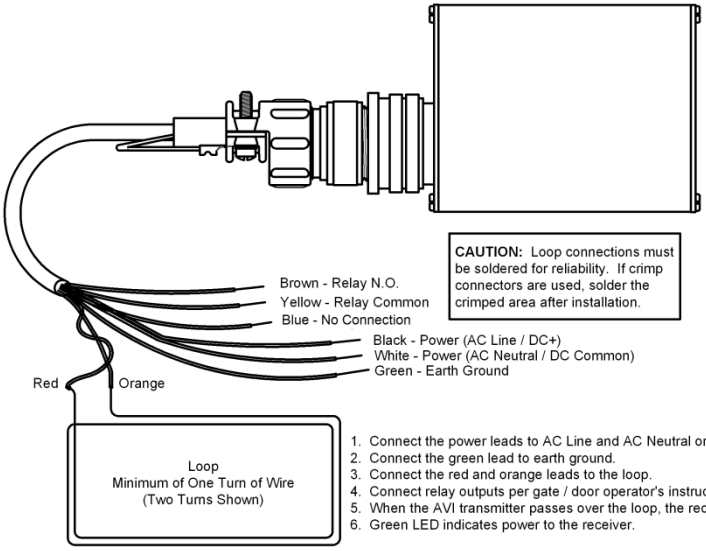
1. Mark the loop layout on the pavement. Remove sharp inside corners that can damage the loop wire insulation.
2. Set the saw to cut a depth (typically 2" to 2.5") that ensures a minimum of 1" from the top of the wire to pavement surface. The saw cut width should be larger than the wire diameter to avoid damage to the wire insulation when placed in the saw slot. Cut the loop and feeder slots. Remove all debris from the saw slot with compressed air. Check that the bottom of the slot is smooth.
3. A continuous length of wire should be used to form the loop and feeder wires. Loop wire is typically 14, 16, 18, or 20 AWG with cross-linked polyethylene insulation. Use a wood stick or roller to press the wire to the bottom of the saw slot (do not use sharp objects). Wrap the wire in the loop saw slot until the desired number of turns is reached.
4. The wire should be twisted together a minimum of 6 twists per foot from the end of the saw slot to the detector.
5. The wire should be held firmly in the slot with 1" pieces of backer rod every 1 to 2 feet. The backer rod prevents the wire from floating when the loop sealant is applied.
6. Apply the sealant. The sealant should have good adhesion properties and be compatible with the pavement material.

Loop Perimeter	Number Of Turns
10 feet - 13 feet	5
14 feet - 26 feet	4
27 feet - 45 feet	3
46 feet - 100 feet	2
100 feet and up	1



Recommended Loop Wire: Reno LW-120 for 1/8" slots
Reno LW-116-S for 1/4" slots

VI Installation Instructions - Wiring



1. Connect the power leads to AC Line and AC Neutral or DC+ and DC Common.
2. Connect the green lead to earth ground.
3. Connect the red and orange leads to the loop.
4. Connect relay outputs per gate / door operator's instructions.
5. When the AVI transmitter passes over the loop, the red LED should illuminate.
6. Green LED indicates power to the receiver.