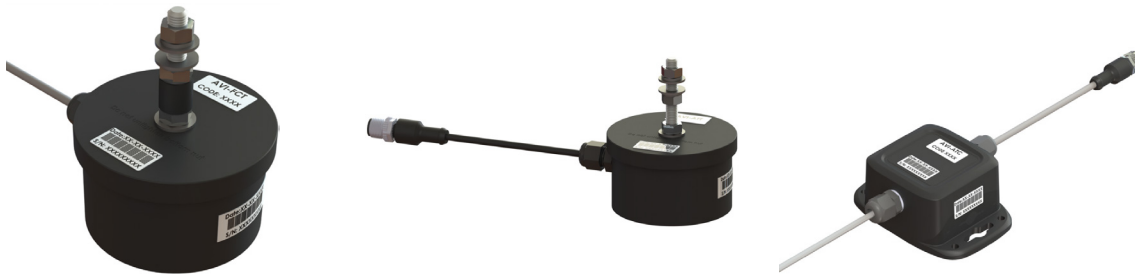


## AVI System - Hands Free Priority Vehicle Access

Single Code Transmitter - programmed with 1 of 19,683 codes



### Single Code Receiver



- AVI-B Vehicle ID only
- BT-AVI Vehicle IS and Detection from the same loop
- AVI-E Two channel receiver (all codes)

### Multi Code Receiver



## System Operation

Reno's Automatic Vehicle Identification & Access Control System provides hands-free access to automatic doors and gates, transit signal priority systems, secured areas and parking systems. Valuable, life-saving time can be wasted when emergency responders need an access key to enter a gated community or secure area with a standard gate preemption system.

The system's AVI transmitters can easily be mounted under a vehicle and connected to the vehicle's electrical system. When power is applied, the transmitter emits a continuous coded signal. The transmitter is inductively coupled through standard roadway loops to a Reno AVI receiver. When the receiver recognizes a valid code, it provides a door or gate "open" signal, permitting vehicle access. The AVI transmitter provides a low frequency coded signal, ensuring reliable vehicle detection. A 911 code is provided for those transmitters employed by police and fire departments.

Our system has been deployed for more than 20 years, with more than 50,000 units in operation worldwide. In addition, lives depend upon a rapid response from emergency services, and they demand the best in AVI technology and reliability.

### Model AVI-FCT and AVI-ATS Transmitters

**General Description:** The AVI Transmitter are self-contained devices that are easily installed on the underside of a vehicle. When power is applied the transmitter emits a coded signal. The signal is picked up by a loop coil mounted in the roadway surface, which is connected to an AVI receiver capable of decoding the transmitted signal. With a water tight enclosure now being used, the AVI transmitter no longer requires potting and is therefore repairable in the event of damage.

**Transmitter Codes:** 19,683 possible codes.

**Setup:** The transmitters are operational immediately upon application of power and do not require any adjustment.

**Fuse:** A one ampere (1 A) slo-blow fuse should be installed in the power lead

**Power:** 10.0 to 40 VDC, 130 milliamps maximum.

**Operating Temperature:** -40° F to +180° F.

**Power Cable:** 8 foot unterminated, two conductor, twisted pair cable. Red (+), Black (-)

### Ordering Information:

Model AVI-FCT - n n- AVI code to be transmitted

Model AVI-ATS - n -> Both AVI-ATC-n and AVI-ATT modules

Model AVI-ATC-n -> AVI-ATC-n module only

Model AVI-ATT -> AVI-ATT module only



### AVI Receivers

**Receiver Codes:** 19,683 possible codes.

**Setup:** The receiver does not require any adjustment or setup.

**Receiving Range:** The transmitter must be in close proximity, or over, the loop coil embedded in the roadway surface.

**Response Time:** The receiver will reliably recognize a valid coded transmitter remaining within the detection zone for a minimum of 100 milliseconds.

**Presence Time:** Once a valid coded transmitter has been recognized the receiver will output a signal as long as the transmitter is in the detection zone, and for a period of two (2) seconds after the transmitter leaves the detection zone.

**Loop Coil Area:** The maximum recommended loop perimeter is 150 feet.

#### Loop Coil Turns:

Loop Perimeter (ft)	10-13	14-26	27-45	46+
Number of Turns	5	4	3	2

**Loop Feeder Length:** The maximum length of loop feeder cable is 300 feet.

**Power Indicator:** A green light-emitting diode (LED) indicates power is present.

**Detect Indicator:** A red light-emitting diode (LED) indicates the presence of a valid coded transmitter.

**Relay Output Ratings:** The output relay contacts are rated for maximum continuous current of 6 amps, 300 VAC maximum, 150 VDC maximum, and 180 Watts or 1800VA maximum switched power.

**Operating Temperature:** -40° F to +180° F.

#### Model AVI-B Receiver

**General Description:** The Model AVI-B receiver identifies vehicles equipped with a uniquely coded AVI transmitter. The receivers are factory programmed to identify one specific transmitter code, and do not require any adjustments or setup. The receivers are operational immediately upon application of power. Separate LEDs on the front panel indicate the presence of power and the presence of a valid-coded transmitter. The Model AVI-B has a relay to indicate the presence of a transmitter code. Multiple AVI-B receivers can be connected to the same loop installed in the roadway.

**Connector:** Front mounted, 10-pin, MS3102A-18-1P.

**Size:** 2.90 inches high x 1.60 inches wide x 4.96 inches deep excluding connector. Connector adds 0.675 inches to the depth measurement.

**Weight:** 12.8 oz.

#### Ordering Information:

Model AVI-B-y-n n = receiver code

y = input power

1 = 120 VAC, 50/60 Hz, 3 Watts maximum

22 = 24 VAC, 3 Watts maximum

30 = 12 to 24 VDC, 1.5 Watts maximum

#### Model BT-AVI

**General Description:** The Model BT-AVI is a dual function unit combining the features of an inductive loop detector with an Automatic Vehicle Identification (AVI) Receiver. Two LEDs on the front panel of the unit indicate vehicle presence and presence of a valid-coded transmitter. The loop detector provides a relay contact closure for vehicle presence. The AVI receiver provides an relay contact for recognition of a valid coded signal from an AVI transmitter. The BT-AVI is factory programmed to identify a single specific transmitter code. One BT-AVI services an individual loop installed in the roadway.

**Sensitivity:** (Loop Detector) The eight-position rotary switch selects one of eight sensitivity levels. 0 is lowest and 7 is highest, with normal (default) being 3.

**Detect Output State - Loop Failure:** DIP Switch 1 configures the loop detector to operate in either Fail-Safe or Fail-Secure mode during loop failure or loss of power.

**Sensitivity Boost:** DIP switch 2 can be turned ON to increase sensitivity by two levels during the detect state without changing the sensitivity during the no detect state. This feature is useful in preventing dropouts during the passage of high bed vehicles.

**Output Delay Time (Dip Switches 3 & 4):** Delay time is defined as, the time following the detection of a vehicle before the output relay changes to the "detect state". Delay times of zero, two, five, and ten seconds can be programmed.

**Output Extension Time (Dip Switches 5 & 6):** Extension time is defined as, the time following the loss of detection before the output relay changes to the "no-detect state". Extension times of zero, two, five, and ten seconds can be programmed.

**Power/ Detect / AVI Code / Loop Fail Indicators:** The unit is fully operational within two (2) seconds after application of power. The unit has one green and three red LED indicators. The LEDs indicate the detector's power status, vehicle detect output state, AVI code output state, and loop failure conditions.

**Loop Frequency (Dip Switches 7 & 8):** Four loop frequencies. When loops are located in close proximity, it may be necessary to select different loop frequencies to avoid loop interference, commonly known as crosstalk.

#### Ordering Information:

Model BT-AVI-1 or 5-n

1 = 120 VAC, 50/60 Hz, 6 Watts maximum

5 = 10 to 30 VAC, 50/60 Hz, 6 Watts maximum or

10 to 30 VDC, 160 mA maximum

#### Model AVI-E Receiver

**General Description:** The Model AVI-E Automatic Vehicle Identification (AVI) Receiver is a two channel card-rack type receiver that detects and identifies vehicles equipped with AVI transmitters. The AVI-E uses two loops (one per channel) installed in the roadway surface to receive the transmitter's code. Each receiver channel operates independently and identifies all 19,683 codes. Each channel can be programmed independently to set any code as either valid or invalid. Each channel services an individual loop installed in the roadway.

**Channel Enable / Disable Switch:** When the switch is in the DISABLE position, the channel will not recognize coded signals. When the switch is in the ENABLE position, the channel operates in a normal manner.

**Audible Detect Signal:** A front panel mounted push button is used to enable an audible detect signal (buzzer) that is emitted whenever a coded transmitter is present within the loop zone.

**Loop Fail Indicator:** Each channel has a front panel mounted high intensity red LED that indicates a current or prior loop failure condition.

**Communication Port:** The AVI-E receiver has a front panel mounted DB-9 RS-232 connector that allows data to be communicated to and from external equipment (e.g. a control system or PC). The RS-232 connector can be used to program each channel of the AVI-E receiver to accept or ignore coded input signals.

**Receiver Address DIP Switches:** A four-position DIP switch located on the PC board is used to select one of sixteen (16) possible address bit combinations for the AVI-E receiver.

**Solid State Outputs:** Optically isolated. 40 VDC maximum collector (drain) to emitter (source). 100 mA maximum saturation current. 2 VDC maximum transistor saturation voltage. The output is protected with a 47 volt Zener diode connected between the collector (drain) and emitter (source).

**Power:** 10.8 to 30 VDC, 160 milliamps maximum.

**Size:** 4.50 inches high x 1.12 inches wide x 6.875 inches deep (including connector, excluding handle). Handle adds 1.00 inch to depth measurement.

**Weight:** 6.0 oz.

**Ordering Information:** Model AVI-E

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