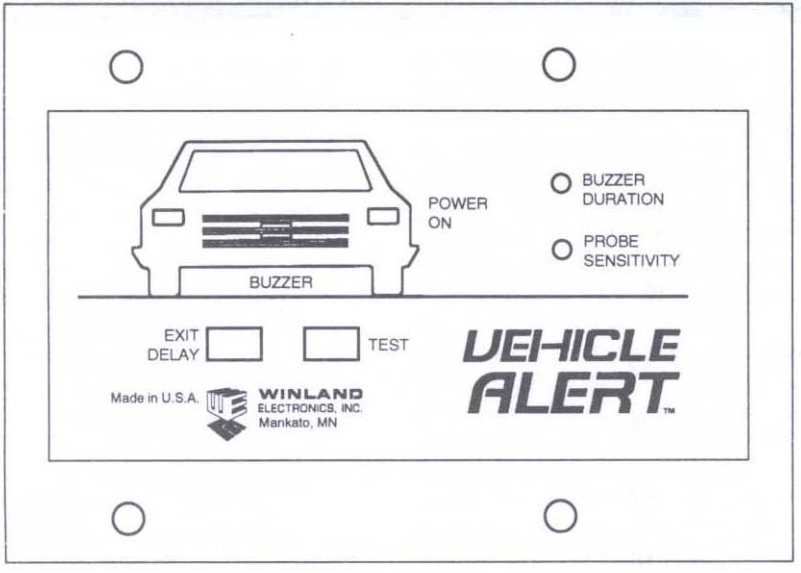


VEHICLE ALERT™

INSTALLATION / OPERATION INSTRUCTIONS

Winland Electronics, Inc.
Mankato, Minnesota, U.S.A.
PN Z1882 REV D
August, 1995

TABLE OF CONTENTS

INTRODUCTION

The Vehicle Alert is a simple to use vehicle motion detection system that operates on the principle that any moving ferrous metal object will distort the Earth's magnetic field to some degree. The technology used to measure this distortion is one of the most reliable forms of outdoor protection available. Unlike other outdoor motion detectors that sense heat, vibration or change in position of an object, the Vehicle Alert will sense only moving iron or steel. This makes the Vehicle Alert a selective sensor, reducing the possibility of false alarms from animals, falling tree branches or people in an outdoor environment. By selectively placing the Vehicle Alert sensor, you can detect cars and trucks entering or leaving an area as well as the movement of a parked vehicle such as your car, a boat or motor home. Objects not constructed of iron or steel can also be monitored by equipping them with a large magnet. When the object is moved in the immediate area of the sensor probe, the Vehicle Alert will activate. Follow the instructions for temporary installation and try your own ideas for monitoring the opening of steel garage doors or the movement of other selected objects.

Once power is applied to the control console, a built-in start up interval allows the Exit Delay timer to set. This takes about 6 minutes to occur. Both of the lights in the car on the label of the Vehicle Alert should be on. At this time, the Vehicle Alert is unable to sound an alarm. Once the Exit Delay light has gone out, the unit is active. If you press the Test button on the front of the console, the alarm will sound and the relay outputs will switch. The buzzer time is adjustable. Refer to the Final Checkout section of this manual to set the duration.

The Exit Delay button is used to disable the Vehicle Alert for a period of about 6 minutes. This delay can be used to allow someone to leave the monitored area without activating the buzzer or any of the other accessories connected to the Vehicle Alert. Likewise, if the

lawn is being mowed or other work is being done in the area of the sensor probe, the Exit Delay can be used to disable the console for short periods of time. Lightning storms that are close to the location of the sensor probe can cause a disturbance in the area that the Vehicle Alert is monitoring. The Exit Delay can be used to disable the console until the storm passes. If the console needs to be disabled for long periods of time, unplug the power transformer from the wall outlet. This will turn the unit completely off. After the disturbance has passed, plug the transformer back in and allow the Exit Delay timer to reset. The console will again be operational.

If more than one location needs to be monitored, one additional sensor probe can be connected to the Vehicle Alert Console. The second sensor, however, will decrease the sensitivity of the other sensor, causing a reduced area to be monitored. Order Part #1012 for an additional Sensor Probe with 100 feet of cable.

The Vehicle Alert has many accessories which allow custom installations to meet specific user requirements. Accessories such as the Light Switching Module, Part #1174, can turn on outside flood lights to give the "at home look" or light up the yard when you or a guest arrive. Additional Buzzers, Part #1175, can be located throughout your home or shop. Since your VAL-1 contains two dry contact relay outputs it can be connected directly (no need to use the Relay Module) to a door bell, wireless transmitter, or hard wired alarm zone to create other types of alarms. With the Relay Switch Module, Part #1176, you can switch higher voltages. The Relay Module can be used to activate a high voltage (110 VAC) device.

Consult your Vehicle Alert Dealer or call the "800" number in this manual for further information.

The basic Winland Vehicle Alert System consists of a Vehicle Alert Console, one Sensor Probe with 100 feet of direct burial cable, and a 12VDC Wall Transformer. The kit also contains five disk shaped UAL connectors.

INSTALLATION

STEP 1:

Find a convenient location for the Vehicle Alert "Console" with the following recommendations in mind:

1. Place the buzzer where it will be heard.
2. Locate the "Sensor Probe" and "Console" in locations that allow easy routing of wires.
3. Locate the console at least 10 feet from radio transmitters or any other source of radio interference.
4. Install the "Console" in a location that allows easy access to activate the Test button or Exit Delay button.
5. For proper installation, the ground terminal G (refer to figure 5) on the "Console" should be grounded to a cold water pipe or a copper ground rod. If neither is available **do not** connect to an AC power ground.

IF YOU ARE HAVING FALSE ALARM PROBLEMS WE RECOMMEND THAT YOU TRY DISCONNECTING THE GROUND WIRE. IN SOME CASES THIS WILL SOLVE THE PROBLEM.

IMPORTANT TIP:

Temporarily wire the system and connect the "Sensor Probe" to the "Console". (Refer to the "Console" wiring instructions Step 3 and do not connect any accessories at this point). Lay the "Sensor Probe" out on the surface to test for proper operation at that location before burying it. This will save time digging unnecessary trenches and holes in your yard. When final position of the "Sensor Probe" and cable have been determined and final checkout has been completed, dig a trench and bury the cable all the way to the building housing the "Console".

*(**WARNING:** MAKE CERTAIN THAT THE AREA YOU ARE DIGGING IN IS CLEAR OF ALL UNDERGROUND UTILITIES. CONTACT YOUR LOCAL UTILITIES BEFORE DIGGING. FAILURE TO DO THIS MAY RESULT IN SEVERE ELECTRICAL SHOCK, EXPLOSION OR LOSS OF UTILITY SERVICE. ALSO, REPAIR CHARGES MAY BE CHARGEABLE TO YOU!)*

The cable may be buried at any depth that will not interfere with your yard maintenance. Run the cable into the building housing the "Console". Leave enough cable at the "Sensor Probe" to allow maintenance of the "Sensor Probe" if necessary.

STEP 2:

Installing the "Sensor Probe" (for driveways not exceeding 20 feet in width).

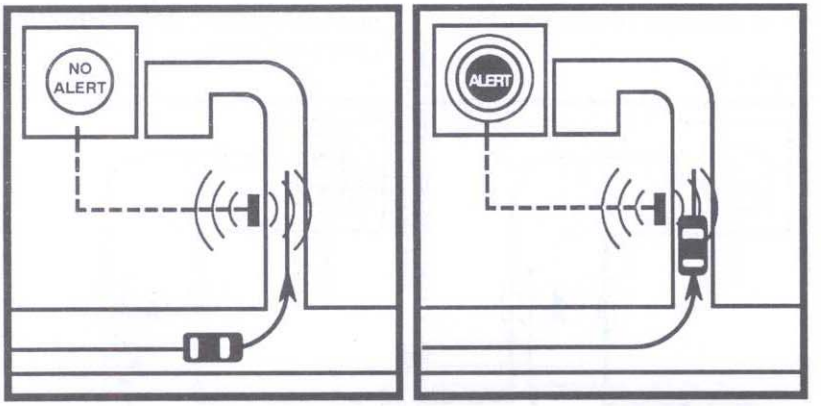
If the driveway to be monitored doesn't exceed 20 feet in width, we recommend that the sensor probe be buried along side the driveway (figure 1). The advantages of this are listed below:

1. "Sensor Probe" and cable need to be buried only 6 to 8 inches below ground level. *The cable back to your home can be buried at any depth that will not interfere or be damaged by yard maintenance.*
2. Eliminates the possibility of crushing the "Sensor Probe" when it is buried beneath unpaved driveways.
3. Concrete or asphalt driveways do not have to be torn up to install the "Sensor Probe".

The "Sensor Probe" should be buried 6 to 8 inches below ground level, parallel to the driveway and next to the traffic area to be monitored. The Sensor covers an area approximately 15 feet parallel to the "Sensor Probe" when activated by a full size automobile. This area will vary depending on vehicle size and speed – the larger the vehicle the larger the area sensed, the smaller the vehicle the smaller the area sensed. The "Sensor Probe" also should be away from high speed traffic, railroad tracks, motors, transformers, radio transmitters, sources of strong magnetic fields, or other moving iron or steel items. Otherwise, false alarms may result. Review the "Important Tip" on page 3 of these instructions. It may be necessary to turn the "Probe Sensitivity" control located on the front of the "Console" if it seems to pick up stray signals.

NOTE: Do not make a bend in the cable of less than 2 inches. A bend of this size may cause the outer casing to crack at the point of least radius. Consequently, water could seep into the wires and cause a corrosion problem.

Figure 1: Driveway does not exceed 20 feet in width



Vehicle approaches driveway unknown to building occupants.

Vehicle enters the sensor zone and It's presence is instantly announced.

"Sensor Probe" should be buried at a depth of 6 to 8 inches, parallel to the driveway. Full length of cable can be utilized or shortened as needed.

If you do not have enough cable to complete the desired installation route, a Splicing Kit and additional cable in 50 ft. increments may be purchased through your authorized Winland Electronics dealer. Or you may contact: Winland Electronics Inc., 1950 Excel Drive, Mankato, MN 56001. (1-800- 635-4269). Request the amount of cable you require in 50 foot amounts by part number W1005 and Splice Kit part number 1082. Both items are required to extend the cable length.

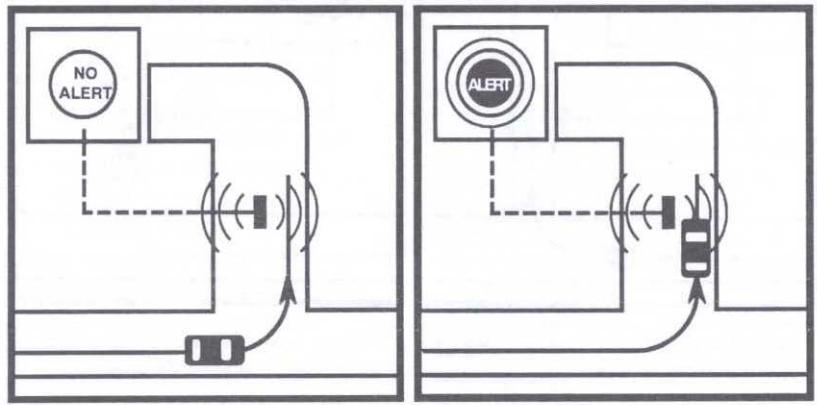
The maximum distance between the "Sensor Probe" and "Console" is approximately 2500 feet.

Installing the "Sensor Probe" (for driveways between 21 and 36 feet in width).

When the driveway to be monitored is between 21 and 36 feet in width, the "Sensor Probe" will need to be buried in the center of the driveway (figure 2) or a "Sensor Probe" placed on each side of the driveway (figure 3).

On gravel driveways, the "Sensor Probe" and cable should be buried about 18 inches below ground level. To protect the probe and cable from being crushed, it is recommended that the Probe and cable be placed inside a piece of PVC conduit pipe and then packed with soft sand before the hole is filled. This precaution is highly recommended for gravel driveways that receive traffic from heavy vehicles. It is also possible to cover this type of driveway by placing a sensor probe on each side of the driveway and connecting them both to the control console.

Figure 2:

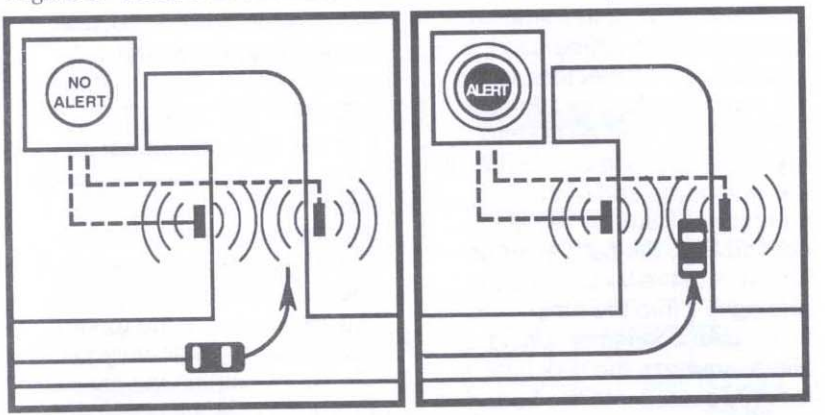


Vehicle approaches driveway unknown to building occupants.

Vehicle enters the sensor zone and It's presence is instantly announced.

"Sensor Probe" should be buried parallel to the driveway, at a depth of 6 to 18 inches depending on driveway composition . Full length of cable can be utilized or shortened as needed.

Figure 3: Electronic sensor should be buried at a depth of 6 to 8 inches.



Vehicle approaches driveway unknown to building occupants.

Vehicle enters the sensor zone and It's presence is instantly announced.

STEP 3: Option #1: CONSOLE INSTALLATION

Surface Mounting without a mounting box

Locate the VAL-1 console in a secure, dry location with an ambient temperature of 32° to +132°F. For soft walls (sheet rock, paneling, etc.) the preferred mounting method is to surface mount the console directly to the wall without a mounting box. For this option drill 1/2" diameter hole(s) into the wall. This hole will provide access to your probe cable and 12-volt power wires. Next, carefully mark the location of the four corner screw holes on the VAL-1. Then drive four wall anchors (not included) into the locations and complete by securing the VAL-1 to the wall.

Option #2: Surface Mt. using a back box

For installation in areas where no hollow interior walls are available or where surface mounting of the wiring is desired, the surface mt. box (part #1110) can be used. The surface mounting box can be secured to any wall. Follow instructions provided with the box.

Power Connections

Using the disk type UAL connectors supplied with the "Console", connect the 12VDC Transformer that was provided with the VAL, connecting the appropriate wires on the cable assembly (figure 4) to the Transformer.

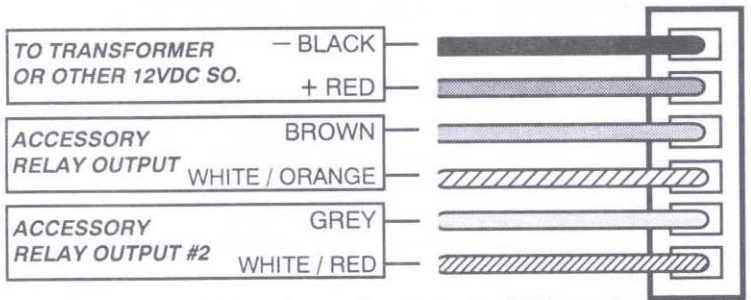
Neither wire should be stripped of its insulation at this time. Using one of the three disk shaped UAL connectors, insert the wire from the Transformer positive lead marked (+) into the small hole. Push the wire all the way to the end of the connector. Take the red lead coming from the connector on the back of the VAL "Console" and push it into the other hole in the UAL connector. Using a pliers, squeeze the disk until it is firmly seated into the bottom of the UAL connector. Repeat using the negative (-) lead of the transformer and the black lead of the "Console" connector. The other leads on the connector are used for the two Form A Relay Outputs which come standard with the VAL-1.

These two relays can be used to trip other devices such as Winland's light switching module (PN #1174) ,additional buzzers (PN#1175), X-10, etc.

If at this time you do not intend to use these optional accessories you should cover these 4 unused wires with tape to avoid shorting to the circuit board. If you have already completed this step and need to run the power wire permanently to the "Console", unplug the connector from the circuit board for ease of routing the cable. When you are finished simply plug the connector back into the connector HD1 located near the center of the "Console" circuit board.

Figure 4:

Power Supply & Dual Form A Relay Connections



Do Not connect high voltage directly to the VAL-1 relay outputs. If you intend to switch 110 VAC you must consult an electrician and make the connections through Winland's light switching module or Winland's Relay Switching Module (PN #1176).

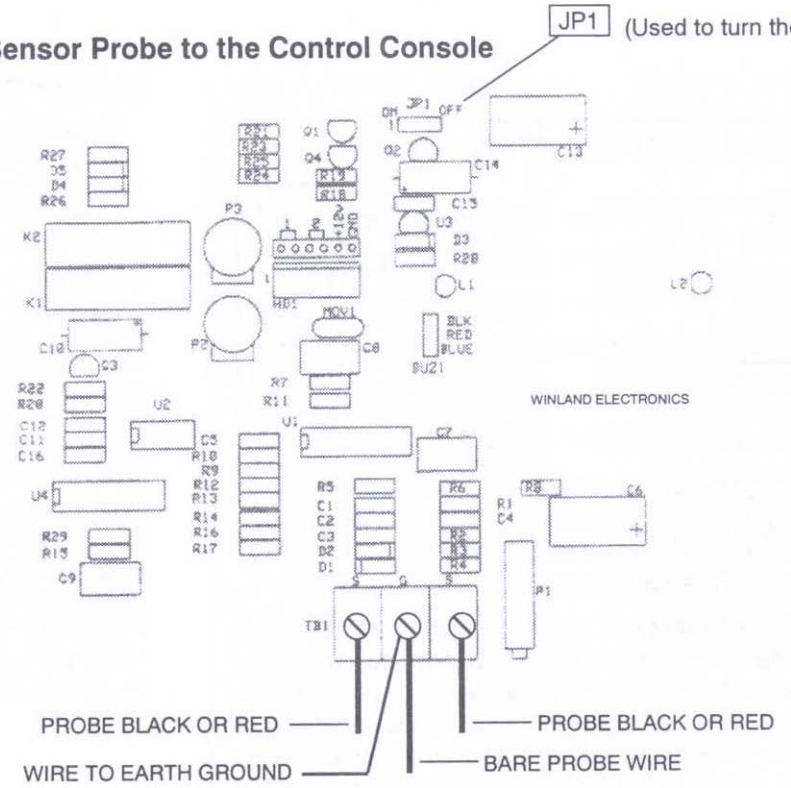
For examples of how to wire into these two Form A relay outputs in order to provide either a *dry contact output* or *12 VDC output* on alarm see the illustrations on the following pages. Both these relays are Normally Open and provide a dry contact closure in an alarm condition for the same length of time as the buzzer sounds (adj. at faceplate). Relay ratings .5 Amps at 24 VDC or 24 VAC.

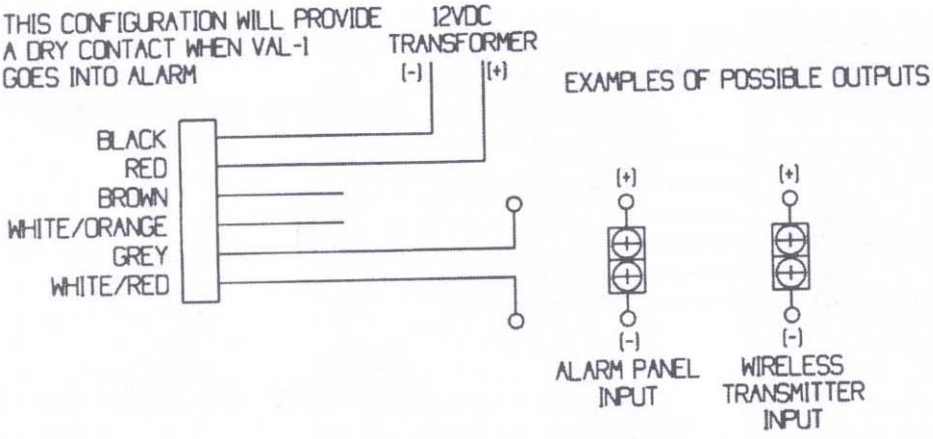
Sensor Connection

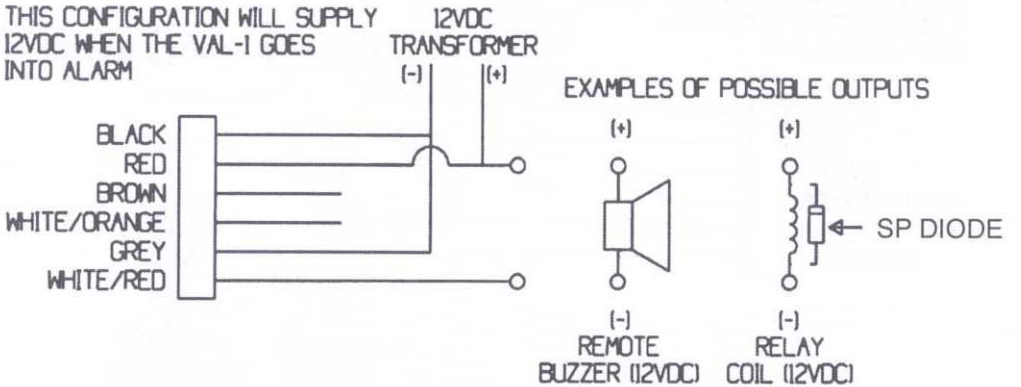
Connect the wires from the "Sensor Probe" to the terminal block on the back of the Vehicle Alert "Console". (See figure 5). Connect the bare drain wire to the terminal marked (G). Connect the insulated wires to either of the two remaining terminals. It makes no difference which wire connects to the remaining terminals. The ground terminal (G) on the "Console" should be grounded to a cold water pipe or a copper ground rod. If neither is available **do not** connect to AC power ground. FAILURE TO GROUND THE UNIT WILL INCREASE THE POSSIBILITY OF FALSE ALARMS.

Connecting Sensor Probe to the Control Console

Figure 5:




THIS CONFIGURATION WILL PROVIDE A DRY CONTACT WHEN VAL-1 GOES INTO ALARM
12VDC TRANSFORMER
(-)
(+)
BLACK
RED
BROWN
WHITE/ORANGE
GREY
WHITE/RED
EXAMPLES OF POSSIBLE OUTPUTS
(+)
(-)
ALARM PANEL INPUT
(+)
(-)
WIRELESS TRANSMITTER INPUT

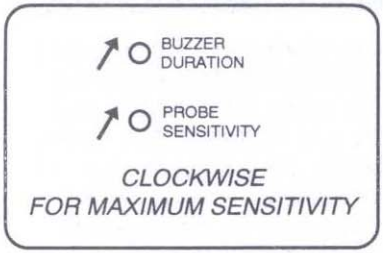

THIS CONFIGURATION WILL SUPPLY
12VDC WHEN THE VAL-1 GOES
INTO ALARM
12VDC
TRANSFORMER
(-)
(+)
BLACK
RED
BROWN
WHITE/ORANGE
GREY
WHITE/RED
EXAMPLES OF POSSIBLE OUTPUTS
(+)
(+)
SP DIODE
(-)
(-)
REMOTE
BUZZER (12VDC)
RELAY
COIL (12VDC)

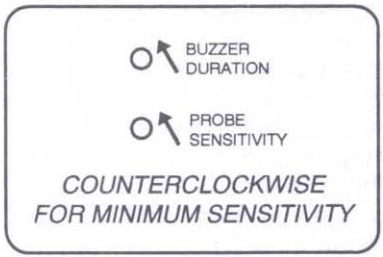
FINAL CHECKOUT

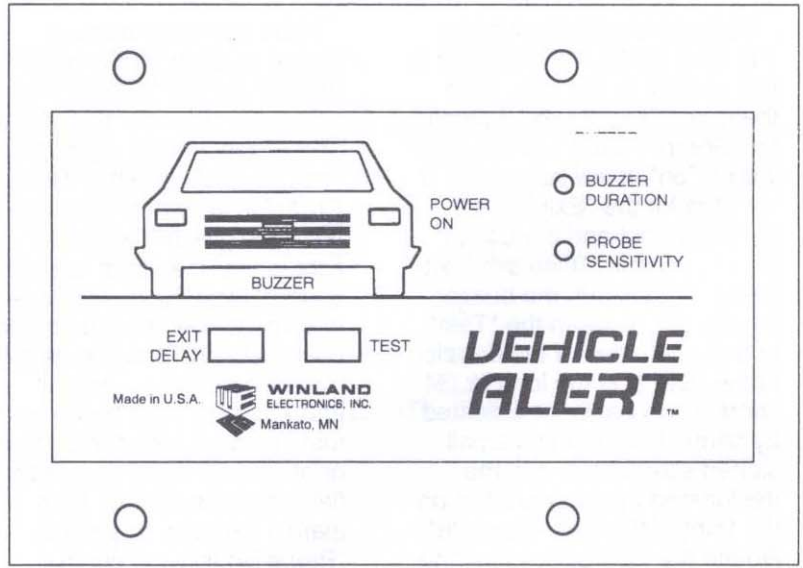
Plug the transformer into a 110 VAC outlet. When power is first applied to the VAL, both the green "Exit Delay" light and the Green "Power On" indicator will be "on". It will take about 6 minutes for the "Exit Delay" light to go out and the unit to become active. Once the "Exit Delay" light is out, the buzzer should sound when the "Test" button is pushed. If the duration of the buzzer is too long or short, it can easily be adjusted by carefully inserting a small slotted screwdriver into the designated opening located on the front of the VAL "Console". Rotate the control to adjust the "Buzzer Duration" from 1 to 18 seconds.

Have someone move a shovel or other iron or steel object over the "Sensor Probe" while you listen for the buzzer. The buzzer should sound once or twice each time the "Sensor Probe" is activated. (Remember if the green "Exit Delay" light is "on" the alarm will not sound). Next, have someone drive a vehicle into the area to be monitored. Check to see if the "Sensor Probe" is far enough away from traffic areas that you do not want monitored or other sources of magnetic fields that may cause false alarms to occur. Adjust the "Probe Sensitivity" control (figure 6) located on the front of the VAL "Console" as necessary. To adjust this control carefully insert a small slotted screwdriver into the opening and rotate the control. When the VAL "Console" leaves the factory the control is adjusted for maximum sensitivity (fully clockwise). To decrease the sensitivity turn the control counterclockwise. It is recommended that the sensitivity level be set to the minimum level needed to help reduce false alarms. If the VAL does not cover the area desired, you may need to move the "Sensor Probe" closer to the driveway, or add a second "Sensor Probe" (see figure 3).

Figure 6:


BUZZER
DURATION
PROBE
SENSITIVITY
CLOCKWISE
FOR MAXIMUM SENSITIVITY


BUZZER
DURATION
PROBE
SENSITIVITY
COUNTERCLOCKWISE
FOR MINIMUM SENSITIVITY


POWER
ON
BUZZER
BUZZER
DURATION
PROBE
SENSITIVITY
EXIT
DELAY
TEST
Made in U.S.A.
WINLAND
ELECTRONICS, INC.
Mankato, MN
VEHICLE
ALERT™

TROUBLE SHOOTING PROCEDURES

If the green **"Power On"** indicator is not on, check to make sure the power connections are properly made to the VAL "Console". The unit will not function unless the "Power On" indicator is on.

If the **Buzzer Will Not Activate -** check for loose connections on the "Console" terminal block. If the system has been unplugged and then plugged back in again, the green indicator light for the "Exit Delay" will reset and another 6 minutes must pass before the light is out and the unit is active.

If the **"Test" button will activate the unit but the "Sensor Probe" will not:** Check all connections to insure they are still connected per STEP 3: Measure resistance of probe with an Ohm meter. Just disconnect the probe from console. The measurement between the "RED" and "BLACK" Sensor Probe" wires should be between 750 to 850 ohms. If you do not obtain this reading, check any splices that you may have made. From "RED" or "BLK" to bare wire should read open.

If the **Buzzer Sounds during lightning storms:** Lightning storms are a potential source of magnetic field disturbance at the "Sensor Probe". If you have grounded the unit per the instructions, there is nothing more that can be done to allow the unit to function during heavy lightning activity. You should unplug the unit or, if a battery power supply has been installed, the battery should be disconnected until the storm has passed.

If the buzzer sounds for no apparent reason and the probe sensitivity adjustment does not solve the problem, disconnect the bare probe wire from the center screw of the terminal block leaving only the Red and Black wires connected to the terminal block. If false alarms still exist, and if the unit was earth grounded, there may be a grounding problem, disconnect the earth ground wire (the wire that leads from the center screw on the terminal block to the earth ground in your home) from the unit.

SPECIAL APPLICATIONS

12 VDC Battery Power: If battery power is desired, a 12 VDC battery capable of supplying 70 mA to the console plus capacity enough to supply any Vehicle Alert accessories can be used. Substitute the battery power supply for the transformer in the section labeled "Power Connections". The battery supply must be well regulated and filtered or it may become a source of false alarms from power supply fluctuation.

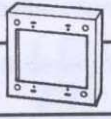
No Buzzer annunciation wanted: On the back of the VAL, located on the top side, is a small jumper labeled JP1 (see figure 5). If this connector is pulled up and moved to the right side of the connector (the jumper clip connecting the center pin and the outside pin together), the buzzer will be disabled. All other outputs for other accessories will remain working, including the remote buzzer output.

Wireless connections to remote accessories and buzzers: The Winland Vehicle Alert works well with X-10® and Radio Shack® wireless modules for remote annunciation of vehicles in other rooms or buildings or to activate other wireless modules. To utilize these transmitter modules, connect one pair of the accessory relay output wires to the (+) (-) screw terminals. Then set the wireless module to operate for a dry contact closure. If this does not work, reverse wires and try again. If it still does not function, consult the wireless module instructions and test them without the VAL connected.

If the trouble shooting procedures on the previous page do not resolve the problem, consult your authorized Vehicle Alert Dealer or Winland Electronics 1950 Excel Drive, Mankato, MN 56001 (800) 635-4269.

ACCESSORIES

Accessories may be purchased through your authorized Winland Electronics dealer, or you may contact Winland Electronics, Inc., 1950 Excel Drive, Mankato, MN 56001, or call 1-800-635-4269.

PART#	DESCRIPTION
1012	Addt'l Sensor Probe for Vehicle Alert with 100' cable 
1082	Water-proof Splice Kit for Vehicle Alert sensor cable. 
1110	3 Gang Surface Mounting Box
1111	110 VAC - 12VDC regulated 400 mA wall transformer 
CALL	Probes available with 10', 100', 200', 350', 500', or 1000' of cable

PART#	DESCRIPTION
1174	Light Switching Module with entrance and time-on delays. 
1175	Optional remote annunciator. BZ-1 
1176	Relay Switching Module (6 Amps at 120 VAC)
W1005	Additional Sensor Probe Wire for Vehicle Alert. Sold in 50 foot lengths. (i.e., 50', 100', 150', etc.)

ONE YEAR LIMITED WARRANTY

Winland Electronics, Inc. warrants that each product of its manufacture is free from defects in material and factory workmanship, when properly installed and operated under normal conditions according to the manufacturer's instruction.

Manufacturer's obligation under this warranty is limited to correcting, without charge, at its factory any part or parts thereof which shall be returned to the factory, by the original retail purchaser, transportation charges prepaid, within one year after purchase and which upon examination shall disclose to the manufacturer's satisfaction to have been originally defective. Correction of such defects by repair to, or supplying of replacements for defective parts shall constitute fulfillment of all obligations to purchaser. Repair service performed by the manufacturer after one year from date of purchase will be for a reasonable service charge.

This warranty shall not apply to any of the manufacturer's products which have been subject to misuse, negligence or accident or which shall have been repaired or altered outside of the manufacturer's factory. Warranty is void if housing or cover is removed.

Manufacturer shall not be liable for loss, damage, or expense directly or indirectly from the use of its product or from any other cause.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE ARE EXCLUDED, AS ARE ALL OTHER REPRESENTATIONS TO THE USER — PURCHASER, AND ALL OTHER OBLIGATIONS OR LIABILITIES, INCLUDING LIABILITY FOR INCIDENTAL AND CONSEQUENTIAL DAMAGES, ON THE PART OF THE MANUFACTURER OR THE SELLER.

No person, agent or dealer is authorized to give any warranties on behalf of the manufacturer nor to assume for the manufacturer any other liability in connection with any of its products.

WINLAND
ELECTRONICS, INC.
In MN (507) 625-7231

1950 Excel Drive
Mankato, MN 56001 U.S.A.
Outstate MN (800) 635-4269