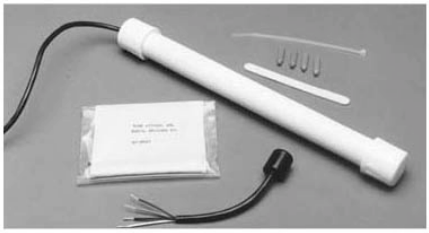
Probes

Sure Action Inc. manufactures several different versions the driveway Probe. This variety allows for complete versatility and the ability to install vehicle detection systems in almost any condition. The vehicle-sensing Probe detects a disruption in the earth's magnetic field within a given space. A moving ferrous vehicle causes a disturbance in this field. All Probes are designed for direct burial on the edge of a fourteen foot wide driveway. The Probe can be also be placed in the center for driveways up to 28 feet wide. It is not necessary to bury the Probe. If mounting the Probe above ground, it must be mounted so it will remain stationary. Since all Probes detect disruptions in the magnetic field, lightning may cause the system to occasionally trigger during severe storms. Temperature and moisture will not affect the system. Sensitivity is fully adjustable at the processor. Probe systems will require either 22/2, 22/3 or 22/4 shielded direct burial cable. Wire with a random twist is recommended.

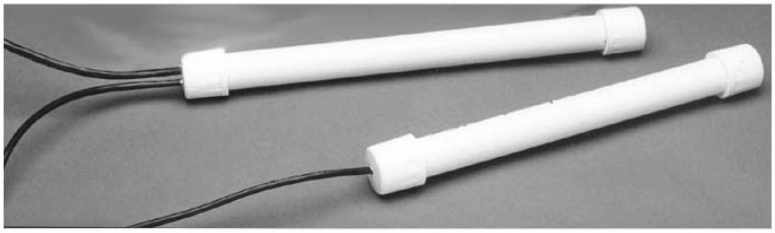
When placing the probe consider the following conditions:

1) The range of the probe will cover a driveway up to 14 ft. wide.
2) ***Do not*** bury probe within 5 ft. of power cables or transformers.
3) ***Do not*** bury probe within 14 ft. of high-powered radio transmitter towers.
4) ***Do not*** bury probe within 24 ft. of residential traffic.
5) ***Do not*** bury probe within 36 ft. of highway traffic.
6) ***Do not*** bury probe within 100 ft. of moving trains.

BASIC PROBE



STANDARD PROBE

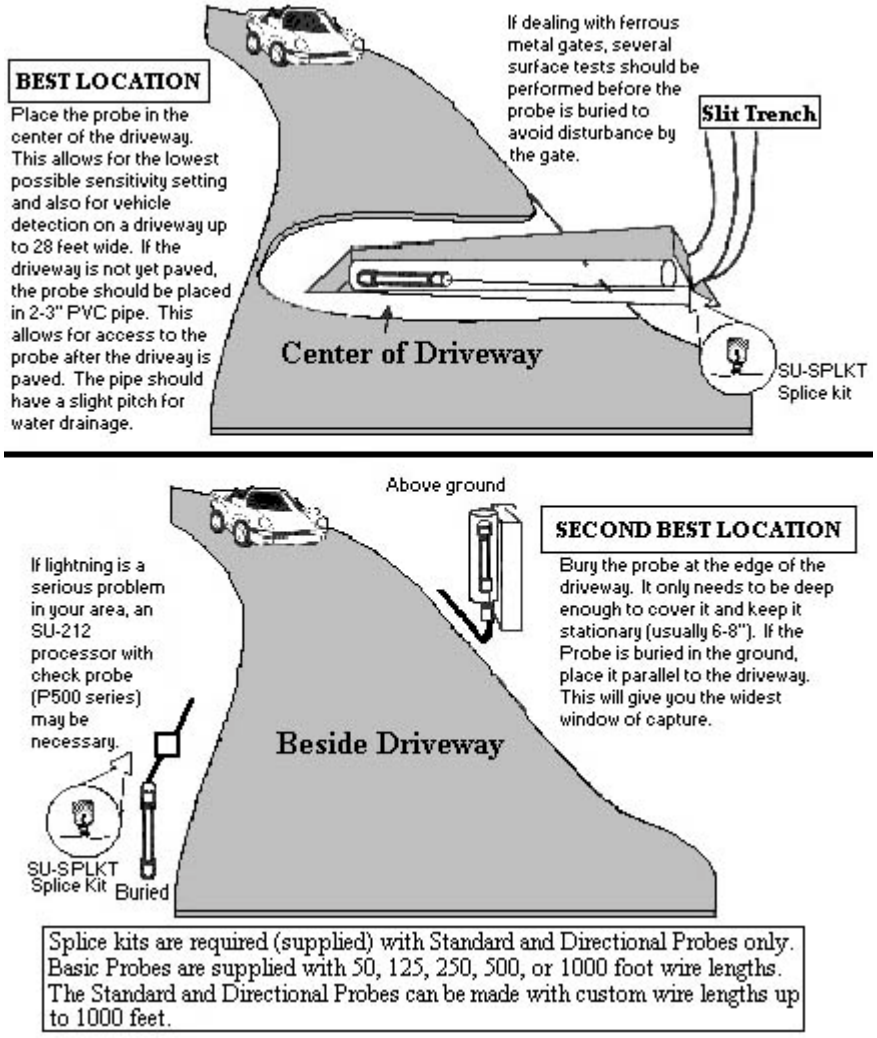


DIRECTIONAL PROBE

Installation:

Step 1: Place Probe at the location at which it will be buried and connect to wire.
Do not permanently splice connections yet.
Step 2: Mount processor and connect wiring.
Step 3: Supply power to the processor. Wait for the system to stabilize (30-45 sec. Max.). Test the system.
If everything is working bury the probe and make all connections permanent.

Installation Suggestions

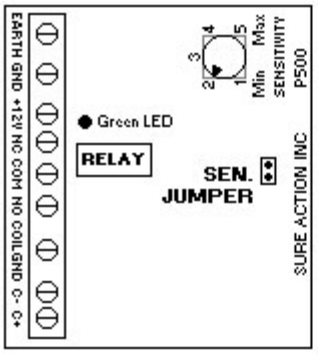


Possible Ways to Bury SU-P5050 Probe for Standard Applications

1) Center of Driveway - 1st Choice
   a) Sensitivity can be lowered for greater stability
   b) Range can be extended for a wide driveway
   c) Bury probe under driveway by encasing probe in 2" or 3" PVC pipe that has been sealed at one end.
      i) Pipe should be pitched for drainage.
      ii) Allows retrieval of probe at later date.
2) Alongside Driveway - 2nd Choice
   a) Bury probe 6"-8" in soft earth close to driveway.
   b) Place probe parallel to traffic motion.

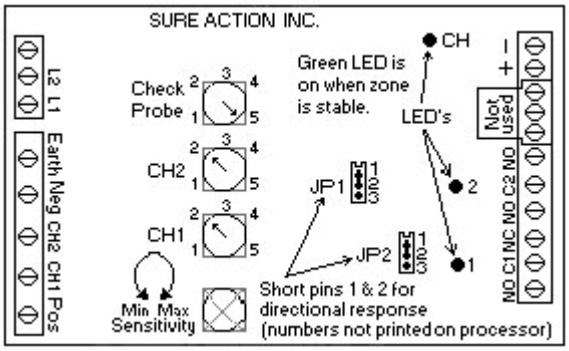
The Processors

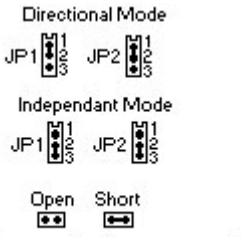
SU-P500



Power Requirement: 12 - 13.5 VDC
Current Consumption:
16 mA (Stable)
4 mA (Alarm)
Output: Form "C" relay
Rated (24 VAC,1 Amp)
Approx. 2-4 second momentary
Green L.E.D: On = Stable
Off = Alarm
Physical Dimensions:
3.0" W x 2.0" L x $^{9}/_{16}$" H
SENSITIVITY PIN: Open (Normal Range)
Short (High Range)
Default = Open (Normal Range)

SU-212





(Numbers not printed on processor)

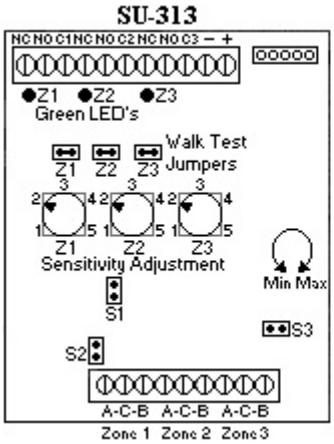
Normal applications (each SU-P5050 probe acts independently):
CH2 operates C2 output.
CH1 operates C1 output.

Directional applications:
C2 indicates traffic moving in primary direction (in).
C1 indicates traffic moving in secondary direction (out).

Dimensions: 5.5"L x 3.0"W x 1.0" H
Current Draw: 55 mA

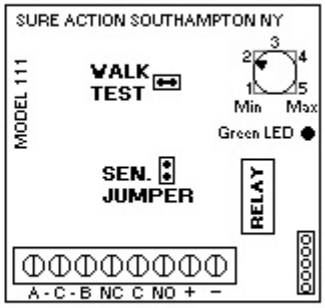
Power Requirement: 12-13.5 VDC
Output: Form "C" relay
rated (24 VAC, 1 amp)
5 second momentary

SU-313



Power Requirement: 12VDC
Current Consumption:
16 mA per zone (Stable)
4 mA per zone (Alarm)
Output: Form "C" relay
Rated (24 VAC,1 Amp)
Approx. 2-4 second momentary
Green L.E.D: On = Stable
Off = Alarm
Physical Dimensions:
← 3.25" W x 4.0" L x 1.0" H
2.0" W x 2.25" L x 1.0" H →
Sensitivity Pins: Open (Normal Range)
Short (High Range)
Default = Sensitivity
Walk Test

SU-111

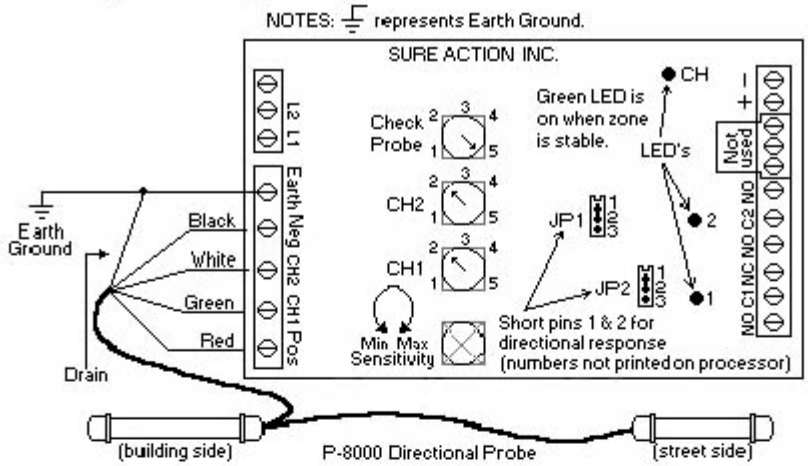


The Systems

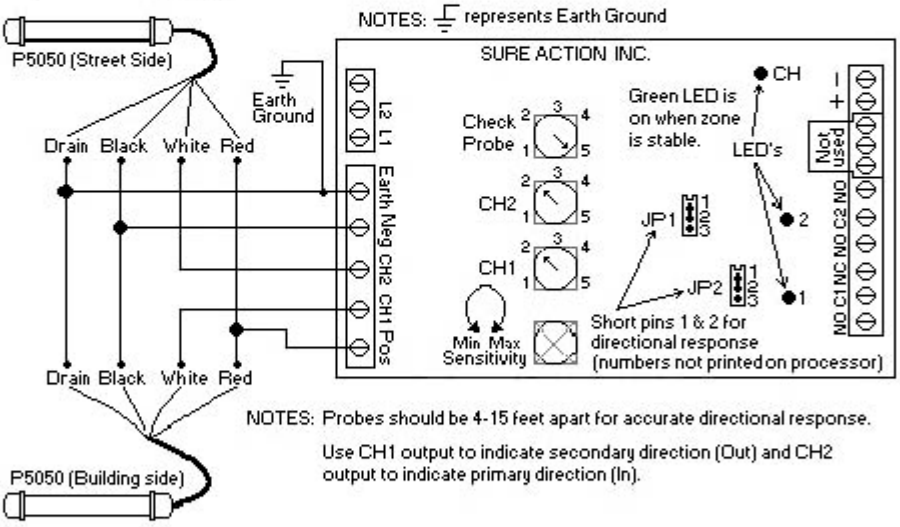
The Directional Probe System

The directional probe system can give an independent signal based on which direction a vehicle is travelling. The system is commonly used for annunciation and turning on lights for incoming vehicles. It is used for gate free exits for outbound vehicles. Any directional system requires the SU-212 processor. Direction can be achieved by using either one (1) SU-P8000 Probe or two (2) SU-P5050 probes. The 212 processor features additional surge protection and an auxiliary zone for a lightning check probe. The following diagrams show the wiring configurations for a directional probe system using either one (1) SU-P8000 probe or two (2) SU-P5050 probes.

Directional system using one (1) SU-P8000 Directional Probe



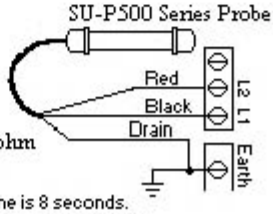
Directional system using (2) SU-P5050 Probes



Lightning Check Probe

L1 & L2 = Red and Black from SU-P500 series Probe

Earth = Drain from SU-P500 series Probe

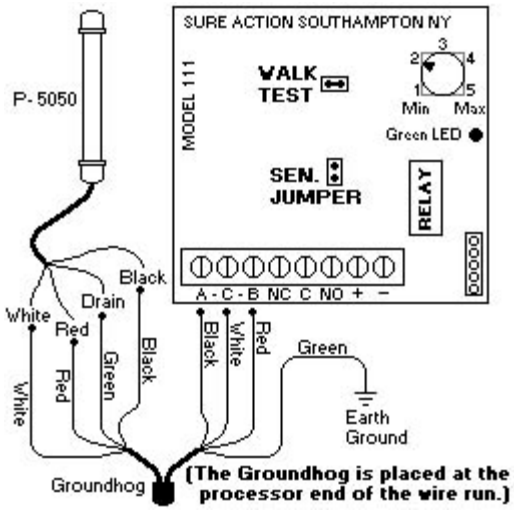


If not using a Check Probe, Place a 1K ohm resistor between L1 and L2.

The Average alarm time for the check zone is 8 seconds. During this time frame CH2 and CH1 cannot be fired. If CH2 or CH1 is in alarm condition when the check zone fires, they will immediately stabilize.

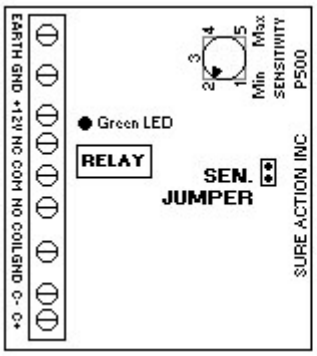
The Standard Probe System

The Standard probe system is not directional. A standard system will give an output any time a probe detects a vehicle.



The Basic System

The basic probe system is also a non-directional system. It will give an output any time the probe detects a vehicle regardless of direction. The basic system uses a P500 Processor. This system requires 22/2 shielded wire. The Probes are supplied with 50, 125, 250, 500, or 1000 foot lengths of wire. This probe is interchangeable with other manufacturers.

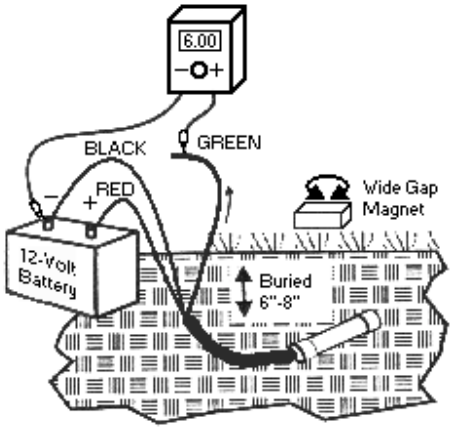


Power Requirement: 12 - 13.5 VDC
Current Consumption:
16 mA (Stable)
4 mA (Alarm)
Output: Form "C" relay
Rated (24 VAC,1 Amp)
Approx. 2-4 second momentary
Green L.E.D: On = Stable
Off = Alarm
Physical Dimensions:
3.0" W x 2.0" L x $^{9}/_{16}$" H
SENSITIVITY PIN: Open (Normal Range)
Short (High Range)
Default = Open (Normal Range)

System Troubleshooting

Probe Field Test - P5050

1. Connect probe to battery as shown and monitor output pulse with a digital voltmeter.
2. Set meter to lowest possible scale with 3-digit accuracy.
3. Observe meter for steady reading of approximately 5.5 to 6.5 volts.
4. Move a wide gap magnet directly over buried probe and observe meter for variations of ± .02VDC to 0.10VDC.



Probe Field Test - P8000

1. Connect probe to battery as shown and monitor output pulse with a digital voltmeter.
2. Set meter to lowest possible scale with 3-digit accuracy.
3. Observe meter for steady reading of approximately 5.5 to 6.5 volts on each of the green and white wires.
4. Move a wide gap magnet directly over buried probe and observe meter for variations of ± .02VDC to 0.10VDC.

Probe Field Test - P500 version Probes

1. Check resistance reading. The resistance reading should be a close match to the number that is written in red on the body of the Probe.

Troubleshooting - 111 or 313 Processor

1. Check voltage on terminals A, C, B (each in relation to Neg. power) with Probe wired in. Ideal voltages are **0.0 at A, 2.1 at C**, **and 5.0 at B.**
2. Check processor by substituting two 1kΩ resistors for probe on terminals:
   Turn sensitivity to 50%, wet finger and rub across resistors. Green LED should turn off & on.
3. Check voltages again with resistors wired in. Ideal voltages are 0.15 at A, 1.75 at C, and 3.35 at B.
4. Check probe and cable using probe field test.
5. Check sensitivity adjustment by re-testing with vehicle for minimum setting needed.
6. Check for other signals or vehicles in immediate area (See Range and Sensitivity section).
7. Occasionally a grounded alarm panel causes a ground loop. In this case, an independent, non-grounded power supply (SU-12VDC) may be required.
8. If lightning becomes a problem, the SU-212 processor and the optional check probe may be necessary.

Troubleshooting - 212 Processor

To test the 212 Processor, take the following steps:

1. Place 1kΩ resistor across L1 & L2.
2. Place a 2kΩ resistor between Neg and CH2.
3. Place a 2kΩ resistor between Neg and CH1.
4. Place a 3kΩ resistor between Pos and CH2.
5. Place a 3kΩ resistor between Pos and CH1.
6. Take voltage readings at CH2 and CH1. Voltage should be 2.01 VDC at each zone.
7. Connect jumpers (JP1 & JP2) at pins 2 & 3.
8. Short CH2 to Neg momentarily with a 1kΩ resistor. CH2 relay should pick.
9. Short CH1 to Neg momentarily with a 1kΩ resistor. CH1 relay should pick.
10. Change jumpers (JP1 & JP2) to pins 1 & 2.
11. Short CH2 to minus momentarily with a 1kΩ resistor. CH2 relay should pick.
12. Short CH1 to minus momentarily with a 1kΩ resistor. Then short CH2 to minus with a 1kΩ resistor. CH1 relay should pick.