

CT-6 SENSOR PROBE INSTALLATION

USE WITH CT-2B, CT-2BG AND CF-2C CONTROL UNITS AS PART OF THE *DRIVEGUARD™*, *DRIVEGUARD INTEGRATOR™*, *DRIVEGUARD ULTRA™*, and *PIONEER™*

SENSOR PROBE AND WIRE CHECK-OUT

It is advisable to check the sensor probe assembly before and after installation in the earth. Use a good multimeter. With the probe wire disconnected from the control unit, measure the resistance between the red and black leads. It should read between 500 and 800 ohms for a single probe. Additional probes on the system will add approximately 620 ohms each. The reading should be stable with zero fluctuations.

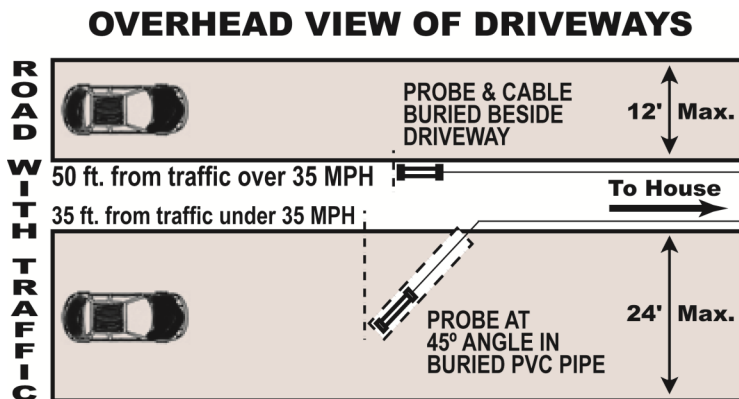
The resistance between the red lead and the shield, or the black lead and the shield should be millions of ohms. The resistance between the shield drain wire and earth-ground should be millions of ohms.

While making measurements to the shield drain wire, do not touch the bare wire or the multimeter leads with your fingers as that will spoil the readings.

If a bad probe is indicated, it may be an improper wire splice. Before digging up the system, dig up the wire splice only, cut the wire on the probe side and retest the system. If the bad readings still exist, cut the cable several feet from the probe and retest. Call Preferred for further troubleshooting before digging up the system.

PROBE DON'T'S

- DO NOT bury the probe within 6 to 10 feet of a buried power or telephone line.
- DO NOT bury the probe within 6 to 10 feet of a buried invisible dog fence.
- DO NOT bury the probe within 10 feet of a natural gas line.
- DO NOT bury the probe within 20 feet of a power pole with a transformer on it.
- DO NOT bury the probe within 100 feet of railroad traffic.
- DO NOT bury the probe within 200 feet of sub-station type overhead power lines.
- DO NOT mount the probe vertically when used for above-ground applications.



LOCATION OF SENSOR PROBE

The sensing range of a probe buried beside the driveway is 5 to 8 feet with a small car going 5 MPH. Taking the width of the car and the sensing range, this system covers a 12 foot wide driveway. Buried in the middle of the driveway, this system covers a 24 foot wide driveway.

The probe should be at least 35 feet back from a street on which traffic is going under 35 MPH and at least 50 feet back from a street on which traffic is going over 35 MPH. If the probe is installed in the center of a 12 foot wide driveway, it can be 20 feet or 35 feet back from traffic respectively. This is made possible by

adjusting the probe's sensitivity (GAIN). For further information, see owner's manual with control unit.

Stationary steel near the probe, but not over the probe, will not affect its operation. The probe can be placed in a PVC pipe under the steel-reinforced grid of a concrete roadway without affecting its operation.

Probes installed above ground should be mounted no higher than 2 feet above the road surface. If the probe is attached to a wall or post, it should be mounted parallel to the ground and parallel with the driveway. Rule of thumb: the vehicle must approach one end of the probe, not both at the same time. If a car approaches both ends of the probe simultaneously (i.e., it is installed across, and not parallel with, approaching traffic) the signal will be cancelled.

In drive-up window applications, the probe should be installed at least 15 to 20 feet before the window.

INSTALLING PROBE AND CABLE

Typically, the probe is buried 6-10 inches below ground, beside, and parallel to, the driveway. It is advisable to bury 6-10 feet of extra cable (coiled up) for future maintenance or relocation.

When installing the probe in existing pavement, bore a 1.5 inch diameter hole vertically, 18 inches deep. Slice the pavement from the bored hole to the driveway edge to accommodate the cable. Install the probe and cable and seal with silicon.

When installing the probe within a dirt or gravel driveway, first bury a 2 inch schedule 80 PVC pipe in the center of the driveway, 6-8 inches deep, and diagonally at a 45 degree angle (see illustration). Slide the probe and cable to the end of this pipe. This will make it easily retrievable in the future.

When installing in new construction, bury the 2 inch PVC pipe under the driveway as described above. Then pour cement or asphalt the drive. Insert the probe and cable after landscaping is complete to prevent possible damage to the cable.

The probe cable is direct burial and does not require conduit. Depth of burial depends on lawn conditions. In cultured grass, bury the cable 2-3 inches deep. The root system of the grass will capture the cable for life. Use a lawn edger to slice a 1/4 inch wide trench across the lawn to the location of the control unit. Push the cable to the bottom of the slice, fill, and tamp. In uncultured field grass or in soil without cultured grass, bury the cable at least 6-8 inches deep.

When installing the cable through woods or above ground, run it in PVC pipe for mechanical protection, as animals will chew through the cable if it is exposed.

When pulling the cable through conduit or PVC pipe, it is important that every inch of cable be liberally lubricated. Use a wire lubricant and pull only 100 feet or less at one time. The cable is coated with polyurethane and has extremely high traction which causes a tremendous drag when not lubricated; enough to inconspicuously snap the wire inside cable.

NOTE: The cable can be buried in the same trench as power and telephone lines, if codes permit. Do not put in same conduit as power and telephone lines. Follow all electrical codes.

WARNING!	The polyurethane coating on the probe cable demands that extreme care be taken when unrolling it. To unroll, put your arm through the center of the roll, remove the tape, and unravel the roll one wrap at a time. Once you begin unrolling the cable, do not lay it down before you are finished lest it becomes irreparably tangled.
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