Installation Notice:

The sensor must be installed in a manner that does not allow it to move. It must be at least 4" below the driving surface.

Installation Notice:

The shield on the lead-in cable MUST be attached to earth ground at the gate operator.

Overview

To ensure a reliable installation, a test should be done on site to determine a sensor installation location that will provide the desired detection area without picking up the gate. This is done by simply temporarily securing the sensor on top of the driving surface (preferably in the center of the driving surface) and connecting it to a RK1-R and DSP-13M assembly. The RK-1R and DSP-13M assembly can be temporarily placed anywhere where 12VDC to 24VDC power is available for powering the assembly. Once all wiring connections are complete and the RESET button has been pressed without any vehicles around the gate and sensor, the sensor location can be tested.

Testing consists of cycling the gate several times to ensure that the gate is not detected by the sensor. If the gate is detected, the sensor can be positioned further away from the gate or, if the sensor cannot be moved further away due to other obstructions, the sensitivity can be turned down. Now, a vehicle should be driven toward the sensor to observe where vehicle detection occurs and where it ends to verify your desired detection area. Be aware that larger vehicles will be detected further away than smaller vehicles. There is typically a 2 foot to 3 foot difference between a large SUV and a small car with the sensor being more sensitive to the SUV. Be sure to test a vehicle as far off to the side as possible to ensure vehicles not centered in the driving surface will be reliably detected. If the sensitivity is turned up to get the desired detection area, be sure to go back and check if the gate is still not detected.

Diablo Controls, Inc.

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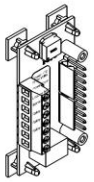
Once a good sensor location has been identified, mark the location and you are now ready to perform the final install steps. Core drill a 1" or larger hole at the marked location to a depth of at least 4" (6" is recommended). **NOTE: Unstable operation may occur if the sensor is not at least 4" down from the top of the roadway surface.** Make a single ¼" wide saw cut, a minimum of 2" deep, from the side of the driving surface to the drilled sensor location. Place the sensor at the bottom of the drilled hole and fill the hole with sand to within 1 ½" of the driving surface. **Do not install the sensor directly into the saw slot as this will void the warranty.** Any movement of the sensor after installation may cause false calls or lock ups. Use a sealant to incase the sensor and lead-in cable in the saw slot. There should be a minimum of 1 ½" of sealant above the sensor hole and the lead-in cable. Route the lead-in cable from the edge of the driving surface to the gate operator following local codes.

Finally, install the RK1-R and DSP-13M (some installations may not need the RK1-R) within the operator. Connect the DSP-13S lead-in cable. Terminate the Normally Open (Relay NO) or Normally Closed (Relay NC) and the relay common (Relay COM) to the appropriate points within the operator. Connect power to the RK1-R. Plug in the DSP-13M. Press the reset button on the DSP-13M with no vehicles in the detection area. Test for no detection of gate movement and proper detection of vehicles. Congratulations, you are now ready for operation.

NOTE: Anytime that the sensitivity setting is changed, the detector will automatically reset itself. Make sure that no vehicle is in the detection area when this reset occurs. The red LED will flash, until the automatic reset occurs.

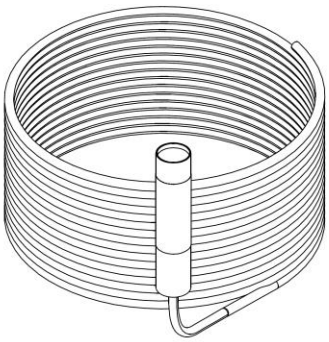
Now that you know what the plan is, let's take this step by step:

Step 1 Identify Parts



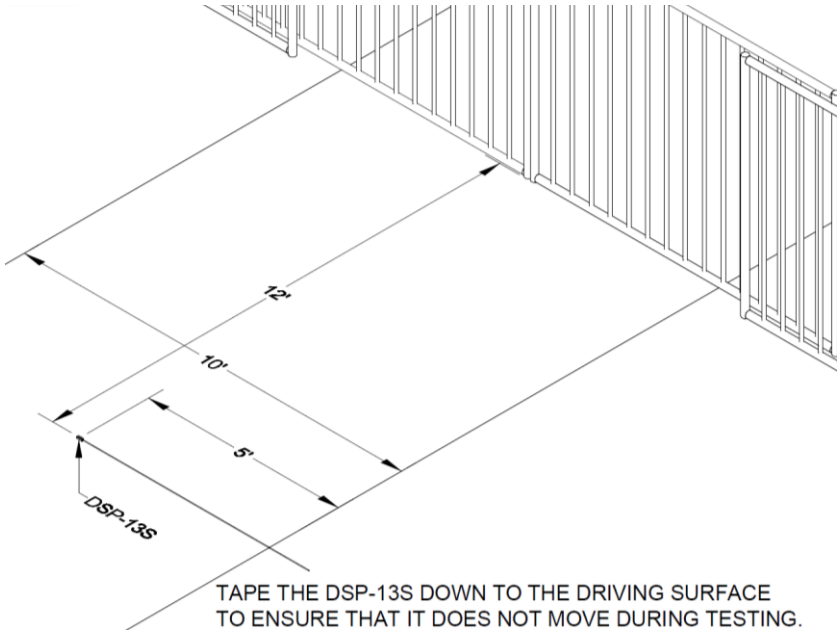
RK1-R

DSP-13M



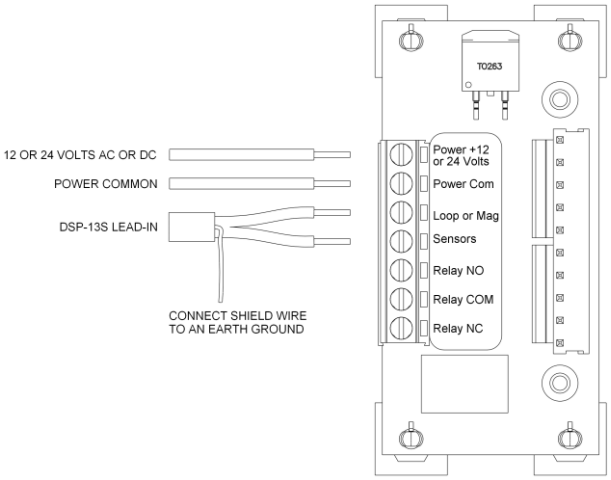
DSP-13S

Step 2 Locate the center of the driving surface and securely place the DSP-13S sensor on the surface. Distance from the gate will depend on several factors (motion of gate: slide or swing - gate materials: steel, aluminum, wood, iron, etc. - size of the gate). A good starting distance is 12 feet away from the gate, if possible.

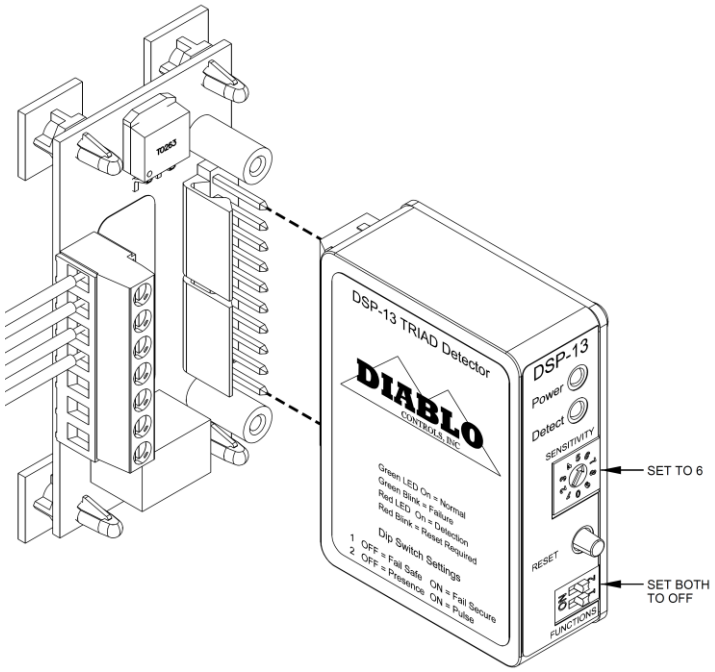


Step 3 Find a Location where the DSP-13M and RK1-R can be temporarily set and powered up for sensor location testing.

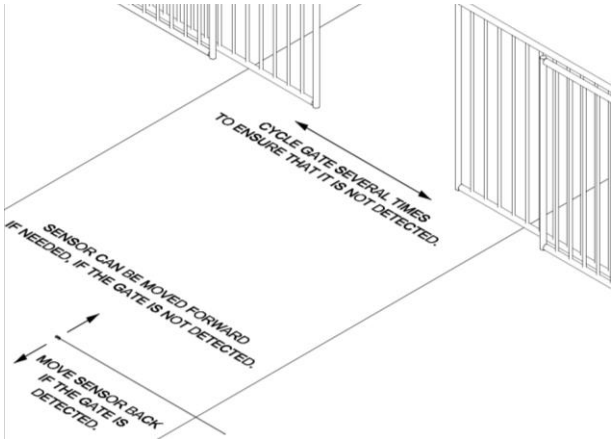
Step 4 Connect power and the DSP-13S lead-in cable to the RK1-R. The DSP-13S is auto polarity sensing, so it does not matter which way the two wires are connected. The shield drain wire for the DSP-13S must be connected to an earth ground for best performance.



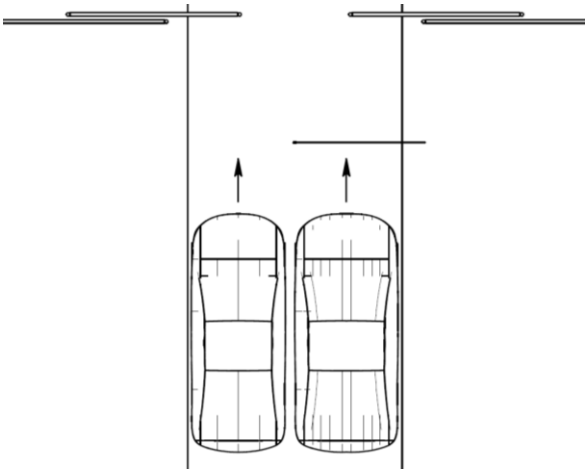
Step 5 Install the DSP-13M on to the RK1-R. Set the sensitivity to 6 and both DIP switches to OFF. Then press the RESET button.



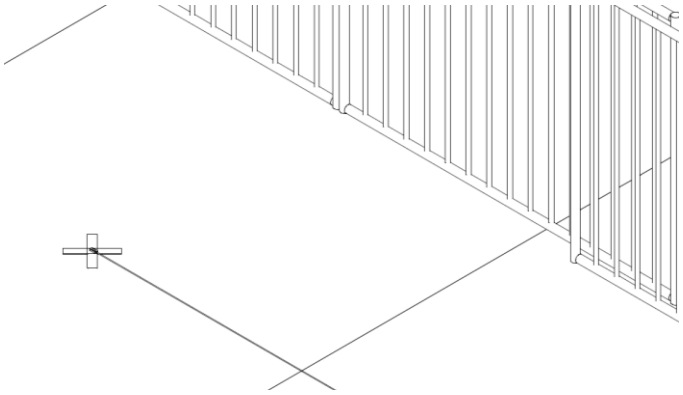
Step 6 Cycle the gate several times to verify that the gate is not detected. If it is not detected, the sensor can be moved closer to the gate if needed. If detected, move the sensor further away. If it cannot be moved further, turn down the sensitivity and press RESET and retest.



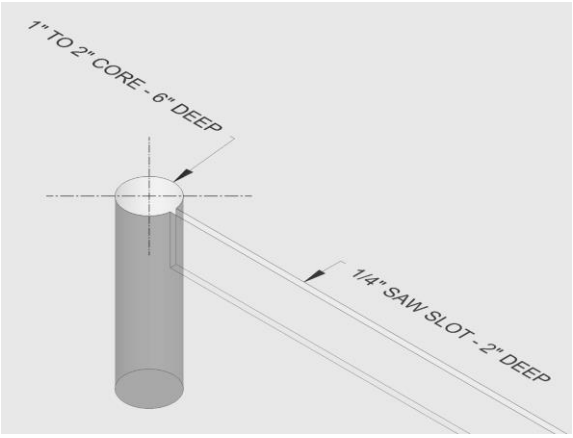
Step 7 Use a vehicle to confirm that a vehicle is detected at the desired locations. Be sure to test being as far as possible to both sides for the driving surface. If you need to turn up the sensitivity, retest for gate detection.



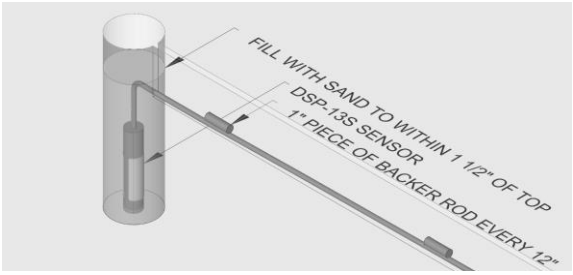
Step 8 Mark the final location of the sensor on the driving surface. There are several possible methods for installing the sensor under the driving surface. We will only provide instructions for the saw cut method in this document.



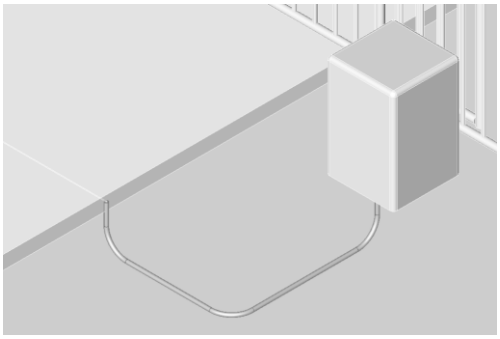
Step 9 Make a single ¼" saw cut, a minimum of 2" deep, from the edge of the driving surface to the marked sensor location. Then core drill a 1" to 2" hole, 6" deep.



Step 10 Install the DSP-13S sensor at the bottom of the hole as shown. Fill the sensor hole with sand to within 1 ½" of the surface. Install a 1" piece of backer rod every 12" to hold the lead-in cable at the bottom of the saw slot. Fill the hole and the saw slot with an appropriate sealant for the driving surface.



Step 11 Run the lead-in cable from the exit point in the driving surface to the operator. Installing a conduit will provide an additional layer of protection.



Step 12 Locate a position within the operator to install the RK1-R or the RK3-R. The DSP-13M is a 10-pin compatible in several operators enabling the installer to connect the DSP-13M directly to the rack provided.