

HY-5A Vehicle Detector

To install an HY-5A vehicle detector, you will need to take the following steps:

- Test the vehicle loop
- Confirm the version of software on the operator is the most current
- Install the HY-5A vehicle detector
- Test the operator

Test the Vehicle Loop

Run diagnostic tests on the vehicle loops before installing HY-5A vehicle detectors to ensure the loops are in good working condition. The following tests cannot guarantee a functioning loop, but failure of either test means that the loop may be damaged or need to be replaced.

Test #1 – Measure the resistance of the loop and lead-in wire. It should not exceed 4.0 ohms.

Test #2 – Measure the resistance to earth ground with a Megohmmeter (Megger). It should be 100 Megohms or more.

NOTE: Loops may function at 100 Megohms or less, but will not be reliable (for example, when the ground is wet from rainfall). A low megohm reading on the resistance to earth ground usually occurs due to broken or moisture saturated insulation. Be sure to use wire with a direct burial jacket such as XLPE or XHHW wire. Do NOT use THHN or non-stranded wire.

For more information about vehicle loop installation, refer to the installation manual that accompanied your operator.

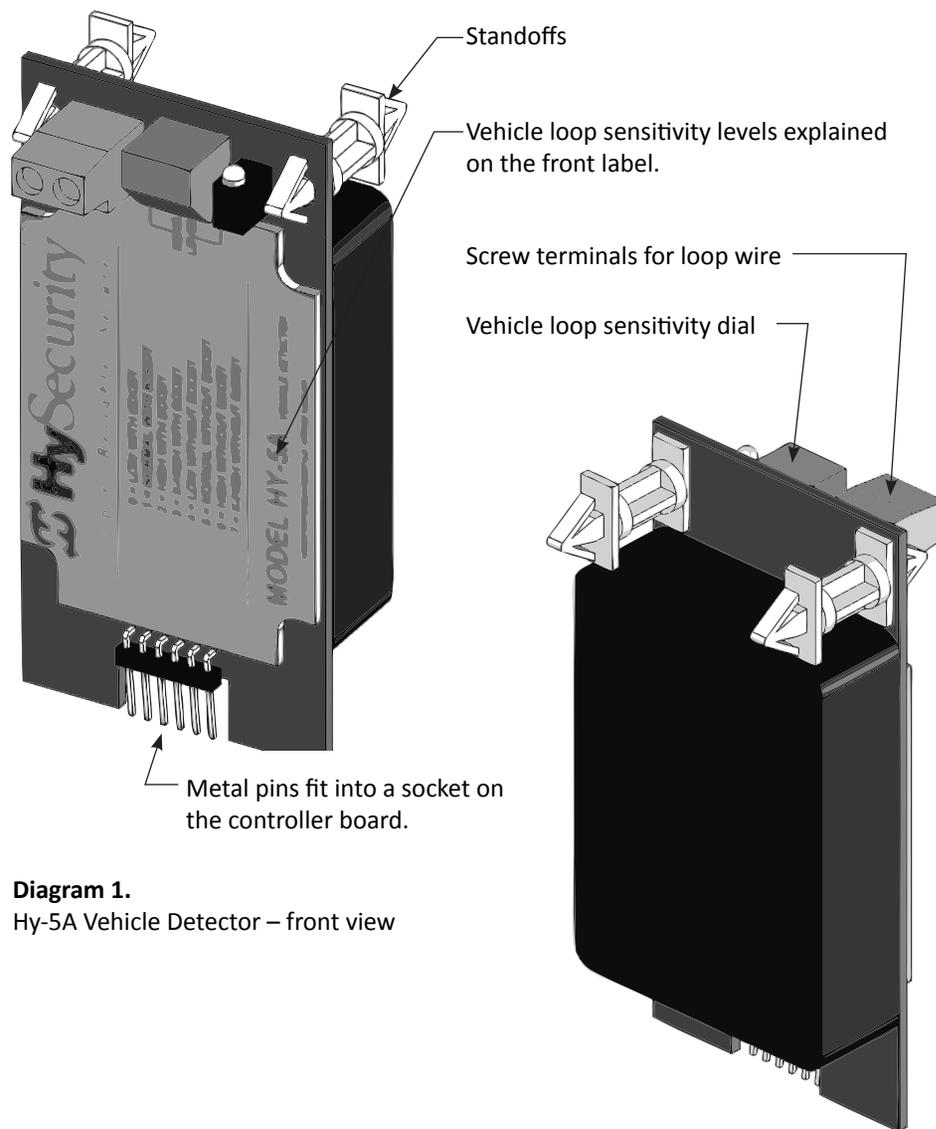


Diagram 1.
Hy-5A Vehicle Detector – front view

Diagram 2.
Hy-5A Vehicle Detector – rear view

Use Current Version of Software

1. See www.hysecurity.com for updates. Use S.T.A.R.T. on your PC laptop and download the most current software and operator code from the website.
2. In the field, open the Control Box in the gate operator.
3. Confirm the software version is current. To display the software version, press the RESET key on the operator controller. If you need to update the operator, download the current software and operator code to the controller board before installing HY-5A vehicle detectors.

Install HY-5A Vehicle Detectors

Install one HY-5A detector at a time. Each vehicle detector socket is labeled on the controller board as shown in Table 1.

1. Turn off power at the gate operator's control box. See Diagram 4. Turn off both the AC and DC switches if you are working on a Smart DC operator.
2. Place the two white plastic standoffs in the HY-5A detector. The plastic standoffs have different-sized inserts that must be installed properly. Place the squared-off end through the hole in the HY-5A detector. See Diagram 3.
NOTE: The squared-off end of the plastic standoff will not fit into the mounting holes of the control box. It is important to install the plastic standoffs correctly as shown in Diagram 3.
3. Determine which loop is being connected and plug the HY-5A detector into the matching socket on the controller. See Table 1. To minimize excessive flexing, keep the HY-5A in a vertical position as you insert it into the socket. Refer to Diagram 5 for proper orientation.
4. Place the two wires from the loop onto the screw terminals of the HY-5A. See Diagram 6. If you plan to combine loops, read the information in *Combining Loops or Detectors*.

Table 1: Vehicle Loop Labels		
Smart Touch Controller (STC)	Smart CD Controller (SDC)	Description
Free Exit	Exit Loop	Opens a fully-closed gate
Inside Obstruction (ILD)	Inside Obstruction (ILD)	Connects to the inside reversing loop
Outside Obstruction (OLD)	Outside Obstruction (OLD)	Connects to the outside reversing loop
Shadow/Reset (SLD)	Center Loop (CLD)	Prevents a gate from starting open or closed when a vehicle is in the path of the gate. Shadow loops apply to swing gates. Reset loops are found on arm gates.

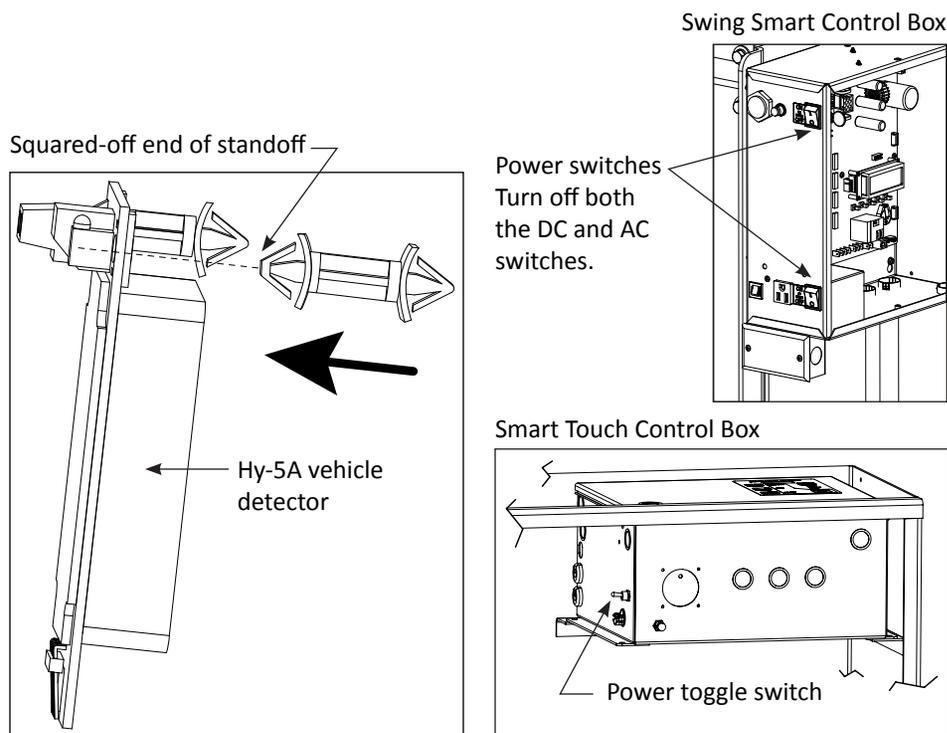


Diagram 3. Insert Plastic Standoffs

Diagram 4. Control Boxes

the inductance needed to detect a vehicle becomes inadequate when the loop area is greater than 200 square feet (61 square meters).

NOTE: A Free Exit loop cannot be combined with an obstruction loop on the same detector. Free Exit is essentially an open command and it will not work when combined with an obstruction loop.

View Call Level in Real Time

1. Enter the Installer Menu and access the loop menu item associated with the HY-5A detector:
Exit=ELD, Inside=ILD, Outside=OLD, or Reset/Shadow/Center=SLD/CLD).
2. Press SELECT and change the menu item to 2, Call Level. For example: IL2 CALL LEVEL

Knowing the strength of a vehicle detector (call level) is valuable because it provides information about how well the vehicle loop is actually “seeing” a passing vehicle. The HY-5A detector has the ability to read call levels in real time on a scale of 1 to 7. A call level of 7 indicates the loop is detecting the passing vehicle extremely well and is highly sensitive. If you receive a call level reading of 0 to 2, when a vehicle passes over the loop, you’ll want to test the loop (see page 1). If the test outcome is good and all the loops are operating properly, you may need to adjust the HY-5A sensitivity dial, so the call level reads in the 5 to 6 range.

Adjusting HY-5A Sensitivity

Detector settings are adjustable by turning the dial on the detector. See Diagram 7.

Settings 0, 1, 2, and 3 are with boost. Settings 4, 5, 6, and 7 are without boost. Boost increases the sensitivity during a call (detection) and is useful for maintaining continuous detection when the signal may become weak. For example, a semi-truck trailer bed between the axles passes over the loop. The factory default setting is 1 and handles a typical 6 x 10 foot (2 x 3 m) vehicle loop.

The detection height is roughly 2/3’s the size of the shortest side of the loop.

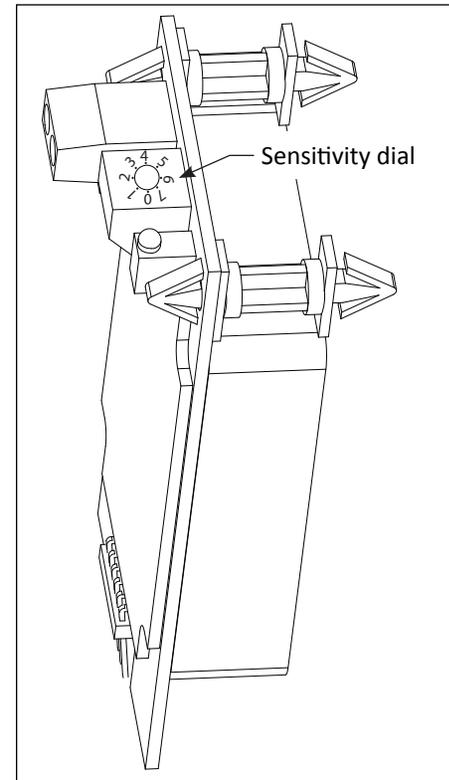


Diagram 7. Sensitivity dial

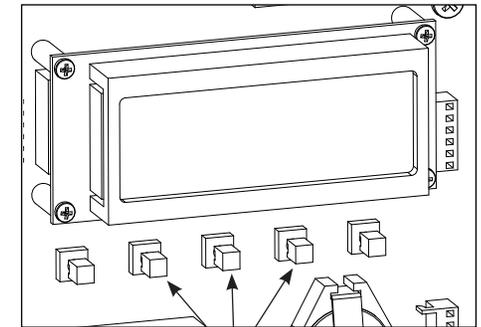


Diagram 8. Keypads

Configuring Software

The default setting for a call (detection) on an obstruction loop is to stop and reverse the gate to full open. The operator can be reconfigured through the software to pause gate closure, and then continue traveling in the same direction. To make changes to the setting, you need to access the Installer Menu using the keys on the keypad. The abbreviated item names appear in the menu as:

Smart Touch Display	Smart DC Display	Description
OR 1	OR 1	Outside Obstruction Loop Detector
IR 1	IR 1	Inside Obstruction Loop Detector

The SELECT, NEXT and PREVIOUS buttons let you navigate within the Installer Menu. If you are unfamiliar with reconfiguring menu items, refer to the operator's manual or call Technical Support.

Test Loop and Gate Operation

1. To make sure the vehicle detectors are operational and the gate is working properly, run through the two tests explained in *Test the Vehicle Loop* on page 1.
2. When you are assured that the gate operator and vehicle loops are functioning properly, carefully replace the operator's cover and secure it to the chassis.

NOTE: When you turn on both DC and AC power switches for StrongArmPark DC and WedgeSmart DC barrier arms will move while searching for its home target.

Technical Support

For technical support, call your installer or authorized HySecurity distributor. Obtain the serial number of your operator before calling. For the name of a distributor near you, contact HySecurity at 800-321-9947.

Troubleshooting

The HY-5A vehicle detector module plugs directly into the Controller board and provides the following benefits over common box-type detectors:

- The best operating frequency is automatically chosen and set
- Loop frequency is continuously monitored
- Cross-talk between multiple loops is eliminated
- Loop frequency and call strength along with loop faults or malfunctions can be viewed on the display

While the HY-5A detector is initializing, an indicator light flashes. When initialization is complete, the operating frequency is automatically set and the indicator light turns off. If you have followed the installation instructions, loop detection and gate operation should be in good working order.

On occasion, problems arise due to faulty installation or equipment. Table 2 provides Troubleshooting Tips.

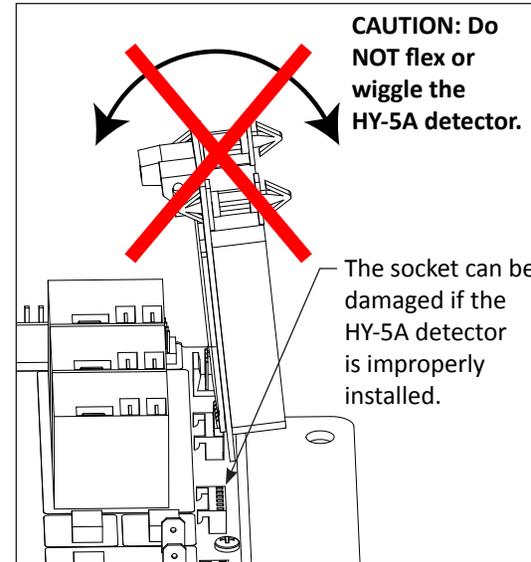


Diagram 9. Incorrect installation

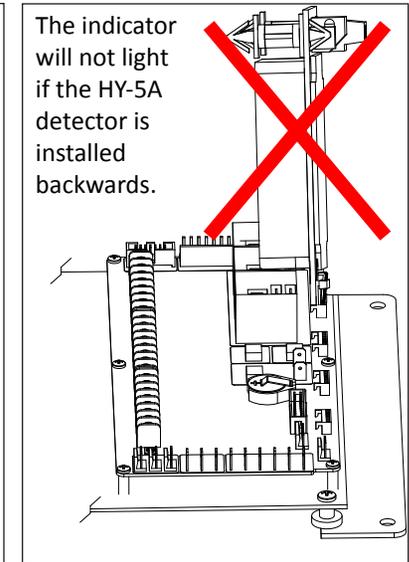


Diagram 10. Incorrect installation

Symptoms	Problem	Resolution
Intermittent detection. False vehicle loop detection where gate seems to be detecting ghost images or signal is not reaching HY-5A detector.	HY-5A detector is not seated properly into its socket. Symptoms can also occur when the HY-5A detector is seated improperly during installation. Do NOT flex the module into place. See Diagrams 9 & 10. For the correct orientation, see Diagram 5. The HY-5A module remains undamaged, but the socket on the Controller has been loosened or damaged.	<ol style="list-style-type: none"> 1. Reseat and re-initialize the HY-5A detector by following steps 2 through 6 in Install HY-5A Vehicle Detectors on page 2. 2. Run both tests discussed in Test the Vehicle Loop on page 1. 3. Set the DS menu item in the User Menu to 1. Review the Diagnostic Log using S.T.A.R.T. and a PC Laptop. Call levels show in the diagnostic log. A low call level could indicate a bad loop or loop wires may have moved or slipped. If the call level is too high (level 7), it may indicate false trips are occurring. Either case, the sensitivity dial needs adjusting. 4. If the problem is not resolved, check for a damaged wire connections. Replace the controller, if necessary. Call Technical Support.

Symptoms	Problem	Resolution
Gate does not always open or close when a vehicle crosses the obstruction loops.	Most likely, the HY-5A detectors were connected to the controller as a group and then initialized.	Individually install each HY-5A module. Wait until the indicator light turns off before pressing the Reset button and installing the next HY-5A detector.
No indicator light appears on the HY-5A detector.	The HY-5A detector is installed backwards or it could be defective.	Check the orientation of the HY-5A detector and re-install it, if necessary.