

## Installation Manual



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# Parts List

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## ShockAvoid by SigAlarm Control Console



## ShockAvoid Sensor

Picture Coming Soon

## Siren/Strobe Assembly



## Limit Switch Assembly



## RAM Mount or specialized mount assembly



Note: Ram Mount is specific to applicator models and may be different than pictured.

## Sensor Brackets

Picture Coming Soon

## Limit Switch Bracket

Picture Coming Soon

## Siren/Strobe Mounting Plate

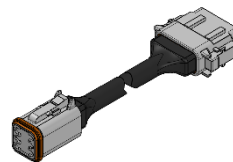
Picture Coming Soon

## Wiring/Connections

Control Console Junction Box (Qty 1)



7' Control Console Cable Assembly (Qty 1)



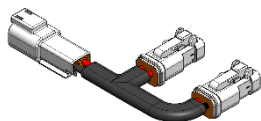
Brand Specific Power Assembly (Qty 1)

IMAGE

Harness "Y" Assembly (Qty 1)



Harness "T" Assembly (Qty 1)



3' 3-Wire Cable Extension (Qty 2)



5' & 10" 2-Wire Cable Extension (Qty 2 each)



# General Information

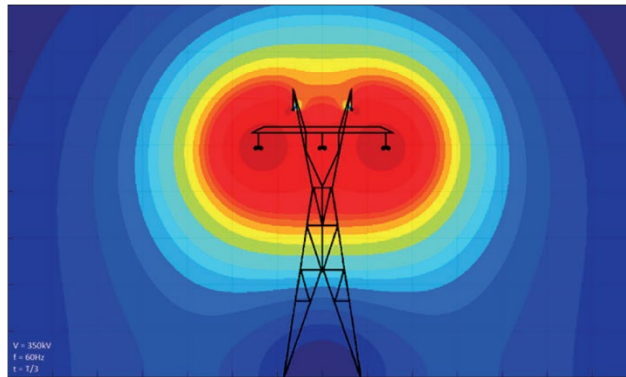
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## Self-Propelled Applicator Installation

1. These instructions are geared specifically to Deere, CaseIH, and Agco self-propelled systems. Other makes and models should be similar, but will require some adaptation on your part. Even within the three brands listed, model, year of manufacture, etc. may require adaptation.
2. Both spray applicators and dry fertilizer applicators with booms may be protected by this system using these instructions.
3. Other applications include combines, self-propelled field choppers, and any equipment with high-reach augers or booms.

## How the system works

All “live” electric wires emit an electrical field around them. The higher the voltage, the larger and stronger that field becomes.



- Sensors mounted on the booms indicate via Bluetooth the existence and strength of these fields.
- The Control Console receives the sensor Bluetooth signals and indicates these strengths on its touchscreen.
- IF the detected field strengths exceed a “Setpoint” that was pre-set by the operator, the system alerts the operator in the cab, and energizes the exterior Strobe/Siren, warning people around the machine, that it is too close to high voltage lines.

**Important: See Operating Manual For Further Instructions On Proper Operations**

# Preparation

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## **Pre-Planning:**

*Your Sensors were fully charged at the factory. Depending on time in the box, they may have run their batteries low. We advise you unpack them FIRST, and place in full sunlight if possible before beginning installation.*

## **System Installation Key Points:**

1. Proper placement of Control Console.
2. Proper placement of the Sensors.
3. Proper placement of the Junction Box (which connects to the Control Console, the machine's power source, and the Strobe/siren)
4. Proper placement of the Limit Switch. (which turns off the exterior Strobe/Siren when the booms are racked)
5. Proper placement of the Strobe/Siren.
6. Wire/Harness connections inside cab and out of cab to Strobe/Siren

## **Items Needed Prior to Installation:**

1. Brand specific power connection 3-wire pigtail.
2. Mounting bracket or post to attach your supplied RAM mount to.
3. Any specific material for your unique installation that is not provided by ShockAvoid in the installation package.

**IMPORTANT:** Where and how you will mount the key parts of the system are vital. We suggest you go over this list and make your plan before turning a wrench.

# Placement: Control Console & Junction Box

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## Control Console

When possible, we suggest you include the equipment's primary operator in this decision. The Control Console needs to be mounted:

- In easy reach and view of the operator
- Where it does not obstruct view of other systems/screens
- Where it does not obstruct view of mirrors, driving



This is usually mounted on the right-hand side windshield pillar in the cab. If needed, it can be mounted on an auxiliary bar to the operator's right. (You may need to acquire additional mounting parts from your equipment dealer).

## Control Console Junction Box

Placement of this box should be out of the way at a point in the cab. It **MUST** be close enough to connect the 7' long cable assembly from the Control Console **AND** the power furnished by the Brand-specific plug in assembly. Note: You may need to use the 3' 3-wire extension for this.

Depending on your specific equipment model, you may need to obtain a power connection mentioned in the planning section. If you do need to acquire your own specific power connection, we have provided 18ga/14ga crimps to attach the three wires from the brand specific power connection to the 3' Deutsch connector. Note: Connect – Black to Black; Red to Red, Green (on Deutsch connector) to yellow/green (on brand specific power connector).

# Placement: ShockAvoid Sensors

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## ShockAvoid Sensors

Sensors need to be mounted with the provided brackets, ideally within 6' of the ends of the right and left booms.



**You must use extreme care in planning and mounting the sensors and brackets. Since most brackets fold when racked, be sure that where you place the sensors, neither they or the sensors conflict with or make contact with other boom parts when racked or in the process of folding to rack the booms.**

**Boom parts, such as stops, springs, hoses, air lines, levers, etc. may change position when folding and unfolding the boom. The sensor and bracket CANNOT be allowed to make contact with these parts either when racking the boom or when in spraying position. Parts that rub or make contact when the boom is flexing can destroy the case of the sensor or the bracket itself!**

Mounting needs to be where the sensor bracket can be securely fastened to the boom, not in direct spray, not blocking other technology mounted on the boom (ie: See and Spray, automatic leveling, etc.) on the top of or within the boom structure.

Although Bluetooth connection is generally not affected, it is best that the line of sight between the sensors and the Control Console is clear. Whenever possible, the brackets and sensor should be mounted to minimize possibility of direct impact with the ground or trees, posts, etc..



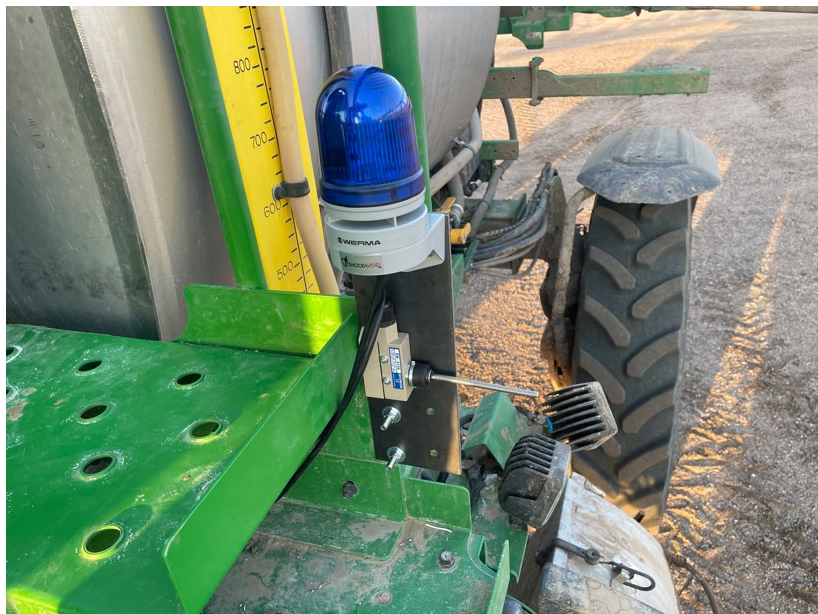
# Placement: Limit Switch

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## Limit Switch

The purpose of the Limit Switch is to turn off the Strobe/Siren when the booms are racked. The limit switch must be solidly mounted on the machine or its support rack in a place that the spring switch is straight when the booms are not racked and bent at least 45 degrees when they are racked.

We supply a short piece of fiberglass angle to aid in your ability to mount this switch. You will need to cut/drill it to adapt to your specific mounting need. Since it is fiberglass, use gloves, eye protection, and a breathing filter when modifying this piece.



# Placement: Siren/Strobe

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## Strobe/Siren

This is best mounted where the nurse truck driver or other personnel can see/hear it when approaching the machine to refill. Ideally, it should be mounted higher than the crop being sprayed and can be heard (120db) on all sides of the applicator. Its best placement is where the operator also can see the strobe flashing from the cab. We supply a larger fiberglass angle or flat piece to aid in mounting this if needed.



# Installation: Control Console

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## Control Console



Mount the Control Console to the windshield pillar or side bracket.

- **John Deere:** A threaded mount is already in the pillar to screw in a RAM ball.
- **CasellH:** You may want to mount on a CasellH mounting bar. You will need to acquire the proper sized clamp with RAM ball for this.
- **Agco:** You may need the Agco supplied auxiliary brackets. We include a specialized adjustable mount for this bracket.

Facing the Control Console, there is a connector on the bottom right. The **7' Control Console Cable Assembly** has a 12-contact Deutsch connector on one end and a 6-contact Deutsch connector on the other. Connect the 12-contact connector to the bottom right connection on the Control Console.

Note: The Power (PWR) cable from the 12-pin connector has the following wire colors:

- Red (Pin 9) Positive – always on 12-48v DC
- White (Pin 10) Switched Power
- Black (Pin 8) Negative Ground

# Installation: Junction Box

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## Junction Box

Connect the 6-contact connector on the **7' Control Console Cable Assembly** to the Junction Box on the side labelled "CONSOLE".



Zip tie or tuck the 2 cables between the Control Console and the Junction Box so they are secure. If you have too much cable length, loop it and zip tie it, place it out of the way—often under the floor mat.

## Mounting the Junction Box.

First, be sure you have enough cable from the **Control Console** to attach to the Junction Box. Then check to be sure you can connect the Junction Box to the **Harness "Y" Assembly**. The OEM power outlet (3-pin) attaches to the **Harness "Y" Assembly**. The 2-pin part of the **Harness "Y" Assembly** will be used for running outside of the cab to the siren/strobe.

Plug in the 6-contact Deutsch connector end of the **Harness "Y" Assembly** to the **Junction Box** labelled "POWER". Plug in the Brand specific end to the power from the machine. If needed, use the **3-Wire Extension**. You will be connecting to the 2-Wire later.



## **POWER SOURCE Warnings and Work-Arounds:**

Even within same model years of equipment, we have found that manufacturers may change the exact Brand-specific connectors. If in doubt, please contact your equipment dealer.

In certain models of applicators, there may be a power plug-in under/behind the seat. Be careful to note that in some cases turning the seat or lowering it may conflict with the plug-in.

The ShockAvoid unit may be powered by any switched 12v power source. We do not recommend, but due to limitations of receptacles, you may need to splice into another cable powering some other item. Note that the ShockAvoid unit requires a minimum 5 amp draw. The 3-wire ShockAvoid cable is Black: ground or common, Red: 12v. power, and Green: Switched power.

In the SigAlarm instructions, there is an additional work-around: directly connecting to the battery or an always live power and ground source. WE RECOMMEND AGAINST THIS. To make this work, the green and red wires from the ShockAvoid cable need to be twisted together and attached to the power wire, the ground attached to the ground wire. That means the Control will always be “on” even if the machine is turned off. Since there is no fuse or circuit breaker between the power and the Control, you should install one. Additionally, to avoid running down the battery if the machine is parked for long periods, you may wish to install an on-off switch. This places an additional burden/risk that the operator may forget to turn the unit on when working.

# Early Testing

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## Early Test of the System

At this point, you should be able to do an early test. Key on the machine, give it a few seconds, and the touchscreen on the Control Console and it should light up. It will give a warning page for a few seconds and then show the operation page.



You'll see the codes for the respective sensors. If not, touch the "Home" button on the upper right hand of the touchscreen. A new page will appear, showing several different selections. Touch the "Manage Sensors" button. The system will ask for a pass code. Enter 0000 (zeros). A new screen will appear. You should see the two sensors codes you wrote down on the list. If you do, then you have sufficiently charged active sensors installed. If you do not, please call us for trouble shooting



# Installation: ShockAvoid Sensors & Brackets

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## ShockAvoid Sensor Brackets

**IMPORTANT:** It is recommended to discuss with your equipment supplier if you intend to drill holes in or weld anything to your equipment, prior to doing so. We have provided brackets that allow for application of our sensors and other pieces of our equipment without need to permanently change your machinery.



The fiberglass brackets will fit most boom applications. We have them pre-drilled to accommodate u-bolts for various booms. The brackets are very low maintenance, and you can modify them if needed for your specific application.

### Basic items:

The brackets are intended to mount with the horizontal portion (with multiple holes) attached to the boom. The vertical portion needs to be mounted facing the forward direction of travel. It provides a level of protection from branches, etc. impacting the sensor.

When the boom is folded up and racked, and when the boom deployed for spraying, the sensor should be mounted so the top of the ShockAvoid Sensor with the solar panel is facing upwards (clear top up).

If your boom folds so that the sensor top is facing down when racked, little or no charging from the sun can occur.

We supply u-bolts for the size of boom you are using whenever possible. Just line them up with the matching holes. Some applications may require a heavy-duty Zip Tie or stainless-steel strap through the holes as an alternate method. Just be aware that a lost sensor is a high-cost replacement if lost.

**IMPORTANT:** Always check to be sure the bracket fits and does not interfere with the boom when it is racked, too!

Please refer to Page 6 for placement instructions.

## ShockAvoid Sensors

Once the bracket is mounted, mounting the sensors is easy.

Each **ShockAvoid Sensor** has a 4-digit code on the end of the sensor. (NOT THE SHOCKAVOID BAR CODE!) The coded end needs to be pointed to the applicator. The right sensor and left sensor BOTH need the coded end facing the applicator.

Make a note of each code and whether it is on the left or right side. ***You will need this later.***

Line up the sensor holes with the embedded threaded rivet nuts on the bracket and use the short ¼" machine screws with washers.

Repeat this on the other boom.





# Installation: Limit Switch

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## Limit Switch

We advise placing the limit switch with the boom racked. The limit switch is intended to turn off the Strobe/Siren while driving with the boom racked.

The switch needs to be FIRMLY mounted at a place where the racked boom will bend the spring toggle at least 45 degrees. It must be able to “spring straight” when boom is unracked. This placement is going to rely on your best judgment. We have supplied a small right angle fiberglass piece that may help you in installation.



Do not address the short wire connection off the limit switch at this step, other than to know it will attach to the TEE later.

**Check your installation by un-racking and re-racking the boom a few times.**

- Does the boom accidentally hit the body or rubber grommet of the Limit Switch? You'll need to adjust/move the switch.
- Does the switch spring go straight when the boom is un-racked? If not adjust so that it does.
- Is it possible that the switch spring can bounce around the racked boom and go straight when the applicator is moving and hitting bumps? Adjust so that it cannot.

# Installation: Siren/Strobe

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## Siren/Strobe

### See Page 8 for Placement Instructions

The siren is the KEY element in communicating to anyone around the sprayer. It is intended to be seen and heard very easily to alert anyone in close proximity of the machine to the eminent danger.

Placing the siren/strobe in a location that can be easily seen and heard is essential to the successful operation of the system.

A fiber glass plate has been included for installation purposes allowing flexibility in placement.



# Wiring and Connections

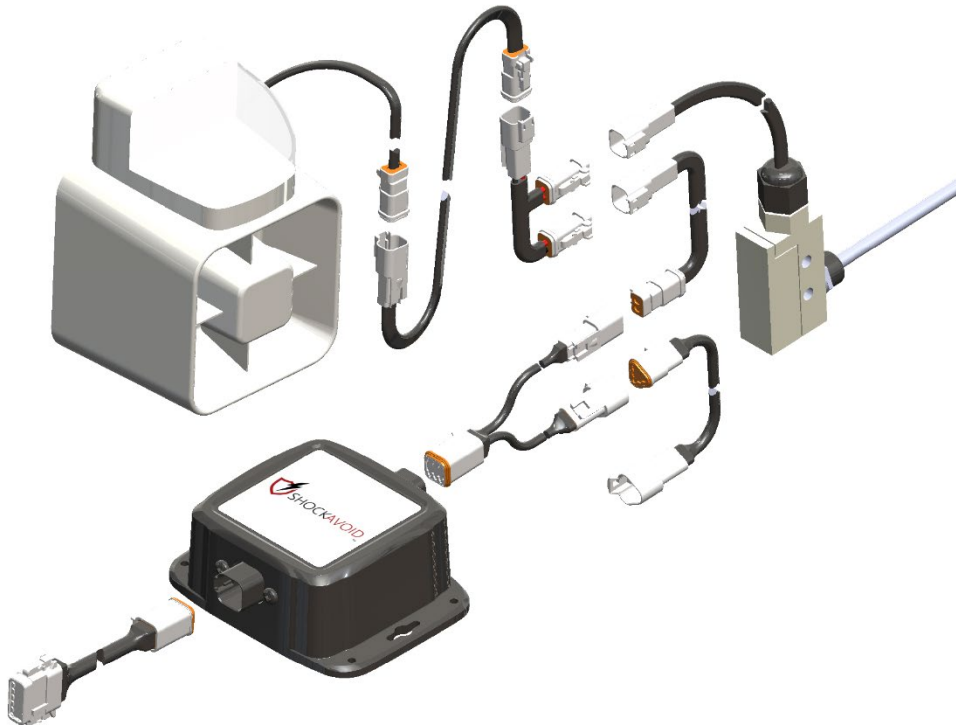
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## General Layout

While the ShockAvoid sensors are Bluetooth with no wired connections, the system does require some basic wiring:

1. Connecting Power to the **Control Console** (this was done during the installation of the **Control Console** and **Junction Box**, see pages 9 - 10).
2. Connecting the **Junction Box** to: (note this will require running the cables outside of the cab and along the body of the machine).
  - a. The Limit Switch
  - b. The Siren/Strobe

The **Junction Box** is the key element in the connectivity as it serves to simplify the connections.



**Step 1:** Connect Control Console to Junction Box – this was completed during the Installation for the Junction Box on Page 9 – 10.



**Step 2:** Connect the Harness “Y” Assembly to the cable exiting cab of machine. This cable will connect to both the Limit Switch and the Siren/Strobe using the Harness “T” Assembly.

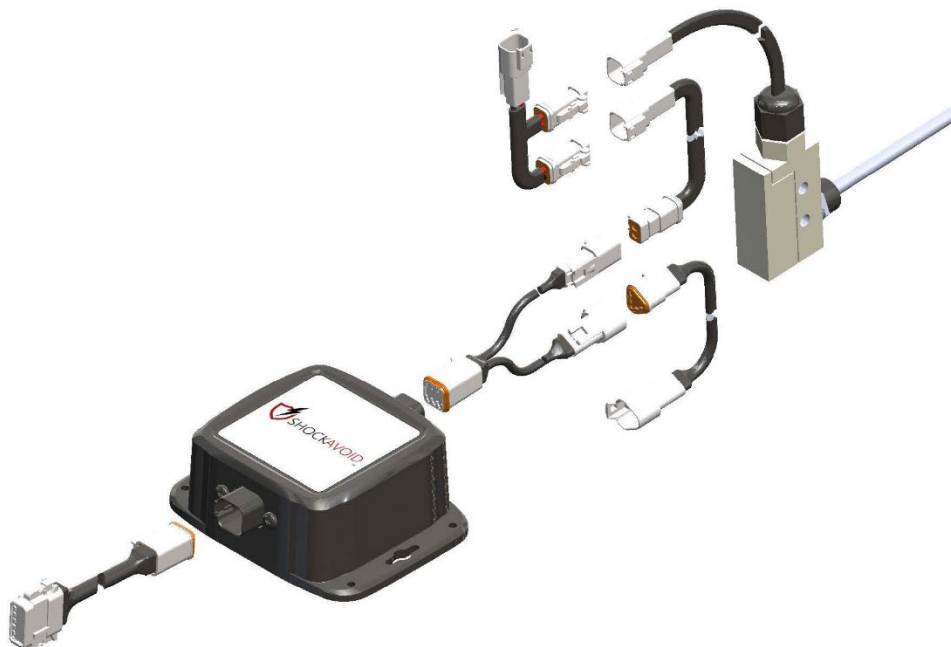
1. Connect the 2 Pin connector of the Harness “Y” Assembly to a 2-Pin cable (5’) and run it out of the cab using the most convenient method available. (This may require either a supplied 5’ or 10’ extension.)



**Step 3:** At an appropriate concealed and protected location, connect the 2-Pin cable that you just ran out of the cab to the Harness “T” Assembly.



**Step 4:** Connect the Limit Switch to one connection from the **Harness “T” Assembly** using a provided **2-Pin Extension Cable**, if needed.



**Step 5:** Connect the **Siren/Strobe** to the remaining connection from the **Harness “T” Assembly** using a provided **2-Pin Extension Cable**.

