SIGALARM®

INSTALLATION AND OPERATION MANUAL

GENERATION 5 WIRELESS

WARNING: Read entire manual before installing or operating this Sigalarm product. Failure to follow these instructions and safety precautions could result in serious injury or death. Keep instructions near equipment where Sigalarm has been installed.

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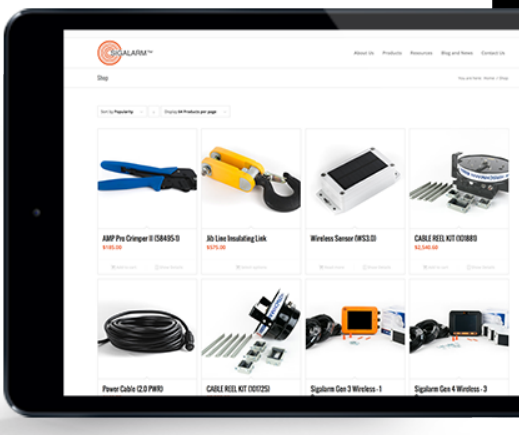
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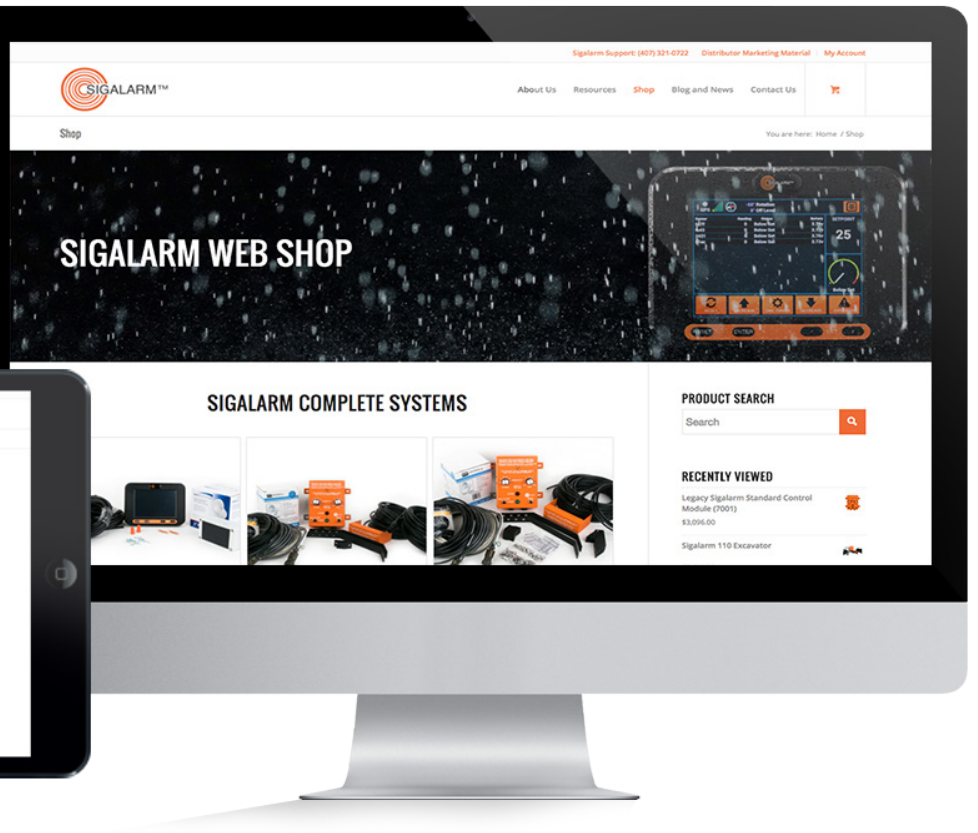

SIGALARM®

CONTENTS

IMPORTANT SAFETY NOTICE

To minimize the risk of serious injury or death, users of Sigalarm products agree to the following:

- Sigalarm products should be installed by a Sigalarm distributor or qualified personnel.
- Operators should receive training prior to the use of Sigalarm products.
- Operators must read the Sigalarm instruction manual prior to operation.
- Operators must use extreme care (and a spotter when required) while operating this product.
- Sigalarm products should not take the place of following safe operating procedures.
- Operator must obey all OSHA guidelines and maintain a safe distance from power lines at all times.
- This product is designed to warn of proximity to power lines. However, Sigalarm products should never be relied upon to provide a warning for equipment intentionally operating less than 10ft to an energized power line.

If you have any questions or are unsure about how to operate this product, stop and contact your employer immediately. Operations shall resume only after safety concerns have been addressed.

INTENDED USES & LIMITATIONS

WARNING: Read this section before use of the Sigalarm. Using Sigalarm for an unintended use or beyond its limitations can result in serious injury or death.

Power line warning systems are a powerful operator aid. The intended use for power line warning systems is to detect the presence of an E-field to provide a warning of danger to the operator or bystanders.

Sigalarm products are intended for use in normal commercial and industrial applications. Applications requiring extended temperature ranges or unusual environmental requirements such as military, medical life-support or life sustaining equipment are specifically not allowed without additional testing for such application.

OSHA requires the employer to determine minimum approach distance (MAD) required for each job site. Power line warning systems should not be used to determine distance. Using power line warning systems to determine distance is a misuse of the product and potentially very dangerous. The employer should always use a spotter to help determine the safe distance.

Here are the limitations and intended uses for effective and safe operation.

Sigalarm products are not intended to be used for the following:

- To measure distances from power lines.
- To detect DC power lines.
- To detect underground electrical sources.
- To provide warning closer than 10ft to a power line.
- To detect voltages at less than 7,200v. Relying solely on Sigalarm power line warning systems to detect lower voltages may result in warning when the equipment is too close to the power source.
- To replace any other safety requirements.

Using Sigalarm products for such uses is dangerous and could result in serious injury or death.

▸ YOU must manually verify that the correct number of sensors are reporting to the home screen on the control module prior to operation. **WARNING:** If any of the sensors show no data or the number of sensors reporting is different from the number installed, do not proceed and notify your supervisor immediately. **DO NOT OPERATE** the unit.

▸ **WARNING:** If you have moved locations, the current setting may not be right for this job site. You will have to adjust the set point as per the manual.

▸ The displayed reading of the sensor does not measure distance. However, it reads the e-field strength (shown as a numeric representation between 5-120) at a particular boom position.

▸ **WARNING**: The alarm set point should be set far enough away from the power lines to give the operator time to react to an alarm. This is usually more than 10 feet.

▸ If for any reason any sensor displays a lower than expected signal reading or a zero reading (near power lines), **DO NOT OPERATE** and verify sensor is operational.

▸ The wireless high voltage power line warning system systems have a continuous self check of connected sensors. If any sensor loses communication, an alarm beep will sound every 15 seconds notifying the operator of a lost sensor.

▸ Sigalarm should not be used as a substitute for any other safety measures required by law or otherwise. Operator should always use a spotter.

▸ The accuracy of the power line warning systems could be adversely affected by such factors as:

1. Operating the equipment with a boom angle and length significantly different than that used for the device's last setpoint adjustment; and

2. Operating the equipment on sites with multiple overhead power lines, especially where those power lines had differing voltages or involve intersecting installations. lines.

▸ Sigalarm systems should not be used on equipment operating closer than 10 feet to a power line.

GLOSSARY

Audible Signal: A signal made by a distinct sound or series of sounds. Examples include, but are not limited to, sounds made by a bell, horn, or whistle.

Competent (Person): A person who is capable of identifying existing and predictable hazards in the surroundings or working conditions that are hazardous or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

Danger: The possibility of suffering harm or injury.

Danger State: State of being in Danger.

Danger Status: Indication that the alarm setpoint has been met.

Danger Zone: An area beyond the danger setpoint where the operation of equipment should be halted.

Dedicated Spotter (Power Lines): To be considered a dedicated spotter, the requirements of § 1926.1428 (Signal person qualifications) must be met and his/her sole responsibility is to watch the separation between the power line and the equipment, load line and load (including rigging and lifting accessories and ensure through communication with the operator that the applicable minimum approach distance is not breached.

E-Field: Electric force per unit change.

Encroachment: Where any part of the crane, load line or load (including rigging and lifting accessories) breaches a minimum clearance distance that this subpart requires to be maintained from a power line.

For Example: Means “one example, although there are others.”

High Voltage: Measured voltage higher than 600 V ac.

Include/Including: Means “including, but not limited to.”

Limitation: Threshold, and parameters on both at which the high-voltage proximity alarm will not reliably function above or below, or both.

Minimum Approach Distance (MAD): Defined in OSHA 29 CFR Part 1926 § 1926.1407- § 1926.1411.

Operational Aids: Devices that assist the operator in the safe operation of the crane by providing information or automatically taking control of a crane function. These include, but are not limited to, the devices listed in § 1926.1416 ("listed operational aids").

Operator: A person who is operating the equipment.

Power Lines: AC electric transmission and distribution lines.

Power Line Warning Systems: A device that provides warning of proximity to a power line.

Proximity Alarm (OSHA) : A device that provides a warning of proximity to a power line and that has been listed, labeled, or accepted by a Nationally Recognized Testing Laboratory in accordance with 29 CFR 1910.7.

Qualified Person: A person who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training and experience, successfully demonstrated the ability to solve/resolve problems relating to the subject matter, the work, or the project.

Range Control Limit Device: A device that can be set by an equipment operator to warn that the boom or jib tip is at a plane or multiple planes.

Range Control Warning Device: A device that can be set by an equipment operator to warn that the boom or jib tip is at a plane or multiple planes.

Sensor: Device that is used to detect the strength of an E-field.

Setpoint: Point at which, based on E-field strength, the high-voltage alarm will enter into an alarm state. The setpoint is set by the operator. **WARNING**: Changing the setpoint is critical to the ability of the proximity alarm to function as designed.

Shall: A word indicating a requirement.

Should: A word indicating a recommendation

Such As: Means "such as, but not limited to."

Status: Indicates the status of the sensor in relation to the setpoint (i.e. “Below Set”, “Warning”, “Danger”; page 18)

State: The particular condition that someone or something is in at a specific time.

Trained Professional: Operators who can effectively perform their tasks, including training on the applicable requirements who understand the information provided in the manual (page 6).

Up To: Means “up to and including.”

Warning: Indication that equipment is at 20% of danger status or closer.

Warning State: State of being in warning.

Warning Status: Indication that equipment has moved within 20% of the setpoint value.

Warning Zone: An automatic warning zone beginning at 20% less than the danger status to the actual danger status.

1. OVERVIEW

1.1 GENERAL DESCRIPTION

Sigalarm Wireless power line warning systems are tools used to assist equipment operators to avoid deadly power line contact. They are a reliable operator aid designed to help detect the electric field (E-field) present around all overhead Alternating Current (AC) high voltage power lines.

This is a warning system. It is designed to give reliable and repeatable warnings to equipment operators and ground personnel in the proximity of dangerous high voltage to prevent encroachment within an electric field or contact with AC overhead power lines.

Our Sigalarm Wireless power line warning systems are an additional protection and are not intended to replace any existing safety procedures, regulations or laws. The Sigalarm Wireless power line warning systems provide visual alarms, audible alarms, and the option to auto shutdown equipment when alarms are initiated. Power line warning systems are a powerful tool, when installed and operated by a qualified person in accordance with the instructions and safety precautions in this manual. Following these instructions can help prevent injury and even death.

1.2 UNDERSTANDING E-FIELD DETECTION

Sigalarm Wireless power line warning systems are reliable and finely tuned devices designed to receive only one selective and potentially life-threatening source: the detectible E-field present around all AC high voltage power lines. Sigalarm products use the science of E-field detection to provide equipment operators and ground personnel a warning.

The strength of the signal (E-field) depends on the lines' voltage and the distance from the lines. Simple adjustment of the settings on the Sigalarm unit will provide accurate and repeatable warnings. After the desired setting is made, a visual and audible alarm will occur whenever the specified E-field (voltage) is detected. The goal is to always alert the operator of the proximity to danger in enough time to allow them to move away and prevent contact. Therefore, Sigalarm warning systems are only recommended for equipment located 10ft or more from an AC overhead power line.

Sigalarm products do NOT measure distance. Determining the distance from the Sigalarm to the AC overhead power line should be done by a dedicated spotter.

scan to watch video

AC VOLTAGE DETECTION ONLY

Sigalarm products do NOT detect DC voltage.

1.3 SAFETY WARNINGS

Overhead power lines are a constant danger to anyone working with or near equipment that can come into contact with these high voltage lines. No warning device can absolutely prevent an accident. When properly installed and operated, Sigalarm products should provide reliable and repeatable WARNINGS of the presence of voltage.

1.4 SAFETY REGULATIONS

It is the equipment operator's responsibility to know and follow all OSHA, employer, utility, and equipment manufacturers' safety instructions, rules, and regulations.

NOT A DISTANCE MEASURING DEVICE

Sigalarm products are warning systems and should not be used as distance measuring devices.

2. INSTALLATION

2.1 STANDARD PACKING LIST

Part #	QTY	Description
WCM5.0	1	Control Module, Generation 5
WS4.0	1-16	Sensor(s)
7315-w	1	Parts Bag
WPASPC-5P	1	Speaker / Horn
5.0G5CMC	1	Cable: with Power supply, relay, and speaker cable
G5T-005	1	Mounting Bracket

2.2 INSTALLATION PRECAUTIONS

It is highly recommended that Sigalarm products be installed by either a certified Sigalarm installer or qualified person. Prior to the use of Sigalarm products, training should be given to the operator by a certified trainer or qualified person. Always test the installation at a safe distance from high voltage power lines. Use extreme care and a spotter while testing this equipment.

2.3 INSTALLATION OF THE CONTROL MODULE; SIGALARM WCM5.0

The main component of the Sigalarm system is the control module WCM5.0. It should be mounted in the immediate vicinity of the operator in plain view, without obstructing their view of the work area.

> Systems with an IP rating will be clearly marked. If your control module does not have an IP rating displayed, do not assume it is waterproof.

2.4. CONNECTING THE CONTROL MODULE TO A POWER SOURCE

Attach the supplied cable labeled “power cable” 5.0G5CMC to a 12v to 48v DC power supply. The 5.0G5CMC cable has a Grey jacket with, red, black and a green conductor. It can be installed one of two ways.

SYNCHING WITH THE SIGALARM APP

If you are using the Sigalarm monitoring feature, scan the QR code on the back of the control module to synch it to your app.

SWITCH POWER (Recommended)

5.0G5CMC, Grey Power cable - Black (Pin 8) Negative Ground
5.0G5CMC, Grey Power cable - Red (Pin 9) Positive – always on 12-48v DC
5.0G5CMC, Grey Power cable - Green (Pin 10) Switched power

POWER

5.0G5CMC, Grey Power cable - Black (Pin 8) Negative Ground
5.0G5CMC, Grey Power cable - Red (Pin 9) Positive – always on 12-48v DC
5.0G5CMC, Grey Power cable - Green (Pin 10) Twist together with Red

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2.5 INSTALLATION OF THE SENSOR(S); SIGALARM WS4.0

The solar sensors are the component of the system that detects voltage.
Use caution when opening sensor lids to avoid cable damage*

TURN THE SENSOR ON:

Remove the sensor lid and put the switch (sw1) in the “on” position. Prior to operation, connect the solar panel in the lid to the (J3) connector in the base of the sensor.
Close the sensor ensuring the solar panel cables are not pinched between the seal. Loosely insert screws in the sequence shown below.

Then tighten all screws to an 8 inch-pound torque. There may appear to be a gap between the lid and the base. This is normal. Over-tightening of screws to close the gap is not recommended.

60 HZ OR 50 HZ

Sensors are shipped with a factory setting to detect 60Hz. Upon request, 50Hz presets can be made prior to shipping. Customer may also switch between 60 Hz to 50 Hz by utilizing the switch (sw2) on the sensor.

VERIFY PAIRING:

Before permanently installing the sensor and after power is applied to the main control module, verify that the correct quantity of sensors are paired. (Refer to **Section 4.12 Manage Sensors** for further pairing instructions). Verify the correct serial numbers are listed and labeled as paired in the Manage Sensors screen.

PLACEMENT AND INSTALLATION:

The almost unlimited type, sizes and configurations of equipment on which Sigalarm products can be used, make it impossible to cover every potential installation configuration in the manual. However, the following explanation should help you understand general sensor placement considerations.

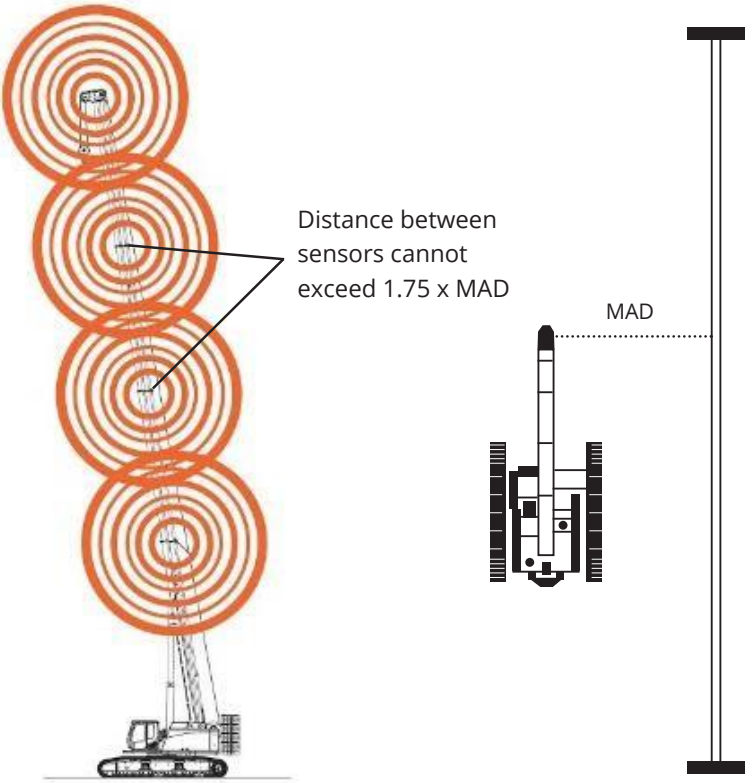
Place a single sensor at the highest point of the equipment with the best line of sight. Where equipment has varying points that can be higher at any given time, multiple sensors should be installed at each of those points. Sensors cannot be obstructed by metal at any time. The sensors have an adjustable protection zone, set by the operator on the main control module. Always install sensors with protection zones overlapping. Please refer to the following suggested installation diagrams for examples. Wireless Sigalarm systems are not appropriate for all types of equipment or every jobsite. When in doubt consult a qualified person.

MINIMUM APPROACH DISTANCE – MAD CONSIDERATIONS:

When installing multiple sensors on a piece of equipment, spacing between sensors should be relative to minimum approach distance or MAD. The distance between two sensors must not be greater than 1.75 x MAD. This ensures there are no gaps in protection along the entire length of the boom. For example, if a minimum approach distance is 20 feet, then the spacing between sensors should be no more than 35 feet.

SENSOR PLACEMENT

The distance between two sensors must not be greater than 1.75 x MAD.



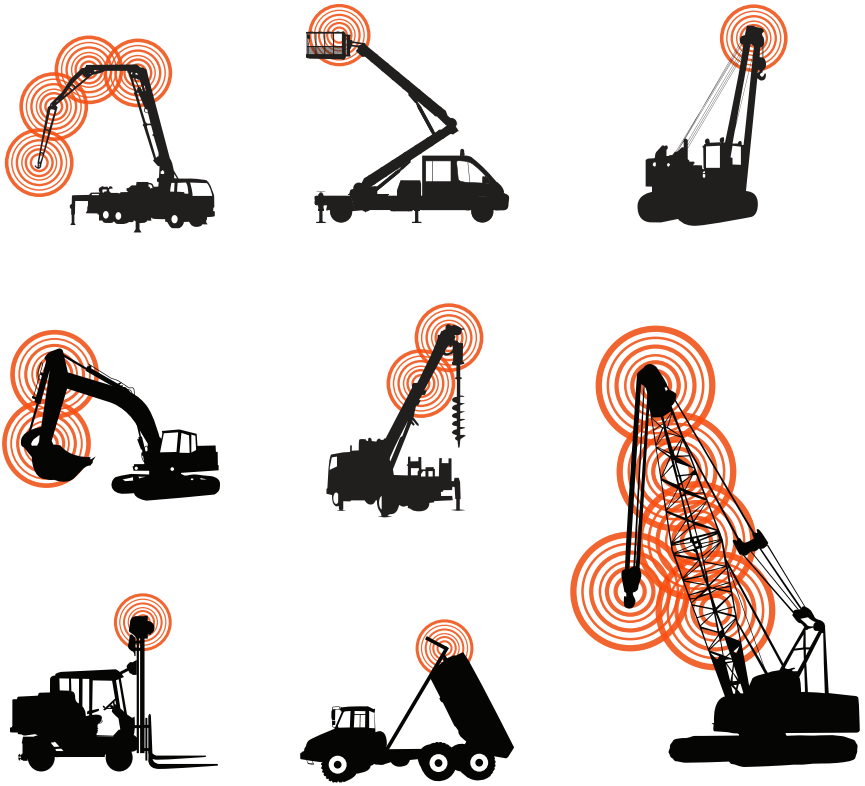
MINIMUM APPROACH DISTANCE - MAD EXAMPLE

If MAD = 20' Then 1.75 x 20' = 35' Distance between sensors < 35'

SAMPLE SENSOR PLACEMENT

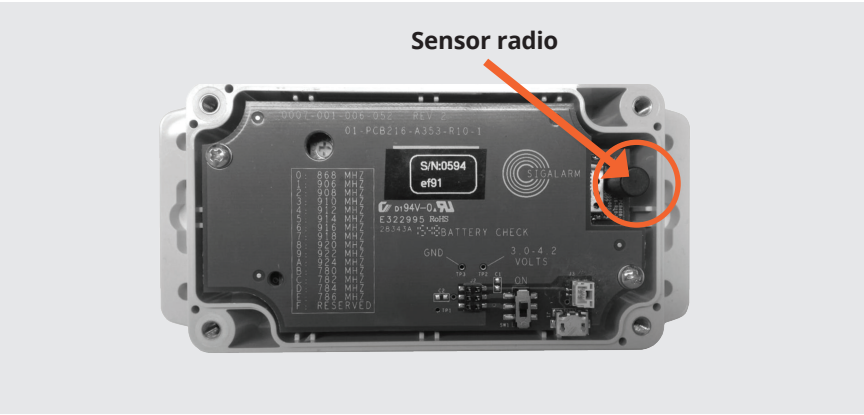
The following images are meant for a visual aid only. They are in no way real life representations, actual or implied. You must not rely on the information in this diagram as an alternative to advice from a qualified person. If you have questions about any installation matter you should consult a qualified person.

PLACEMENT SUGGESTIONS



MOUNT THE SENSOR WITH OPTIMUM RADIO POSITIONING

The sensor radio should be placed with the best possible line of sight to the control module. For example, rotating the sensor so the radio is on the left versus the right could improve communication with the main control module under certain circumstances.



RADIO DISTANCE RATING

Zigbee radio communication is rated for up to 27 meters indoors and up to 100 meters outdoors. Wireless sensors should not be placed at a distance greater than 27 meters without testing for radio quality and strength. Communication between Zigbee radios is affected by many things. Always test your installation for effective radio strength and quality. See **Section 4.12**.

2.6 INSTALLATION OF THE SPEAKER; WPASPC-5P

An **exterior** weatherproof speaker is provided with each system to warn persons outside the equipment of danger. Place the speaker where it can easily be heard by ground crew, but will not be damaged during equipment operation. Connect the blunt speaker wires to the supplied speaker cable conductor with the white jacket from the 5.0G5CMC as follows:

5.0G5CMC, Red Speaker cable (pin 11) to black horn conductor
5.0G5CMC, Black Speaker cable (pin 12) to white horn conductor

EXTERNAL SPEAKER HORN

Do not mount this speaker inside a closed cab.

2.7 RELAY OPTIONS

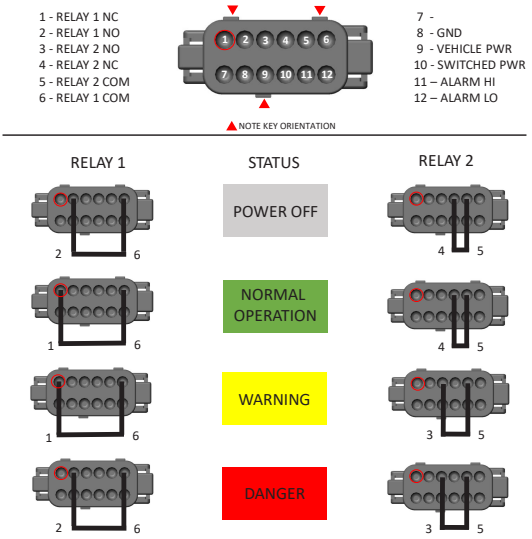
Your Sigalarm has two relay options supplied with the 5.0G5CMC that allow you to customize your installation. These relays will open and close under different circumstances. A normal operation, warning, or danger status will open or close these relays according to the diagram. These relay outputs are for up to a maximum of 50Vdc/75Vac only.

Some common relay usage examples include:

- Wiring the Sigalarm system to your vehicle's hydraulics to stop hydraulic operation (movement) while the system is in an "alarm/danger" state
- Wiring the Sigalarm systems to an external light that remains lit in a "normal operation" (below setpoint) state

Use the relay diagram to customize the installation to your needs.

SIGALARM RELAY STATUS DIAGRAM



SIGALARM STATUS	DEFINITION	RELAY 1	RELAY 2
		PINS 1, 2 & 6	PINS 3, 4 & 5
POWER OFF	no power supplied to control module	OPEN	OPEN
NORMAL OPERATION	sensor status below setpoint value	CLOSED	OPEN
WARNING	approaching setpoint value	CLOSED	CLOSED
DANGER	at or above setpoint value	OPEN	CLOSED

SIGALARM STATUS	DEFINITION OF STATUS	RELAY 1	RELAY 2
		PINS 6 & 1	PINS 5 & 3
power off	no power supplied to control module	open	open
normal operation	sensor status below setpoint value	closed	open
warning	approaching setpoint value	closed	closed
danger	at or above setpoint value	open	closed

RELAY INSTALLATION EXAMPLE

Auto shut down: To stop hydraulics moving when a danger state occurs, connect the supplied relay cable 1 to the equipment's hydraulics using Pin 6(red) and 1(black) so the circuit is interrupted and hydraulic movement is stopped in a danger status.

Auto shut down is never recommended for equipment moving a load

2.8 TESTING THE INSTALLATION

WARNING: Verify your installation is correct and complete the operation set up prior to operating equipment near power lines.

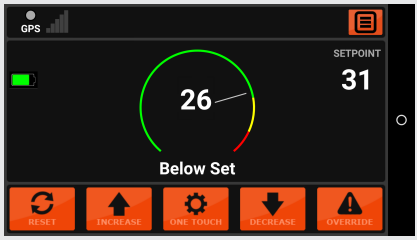
- Apply power to the unit and verify the screen turns on and the unit goes into a maximum status (setpoint 5). If no sensors are paired, “no sensor” will appear across the screen.
- Select the reset button and verify the control module reverts from max (setpoint 5) to the last displayed setpoint. The setpoint autosaves every 10 seconds.
- Verify the correct quantities of sensors installed are showing in the Home Screen/ Detail View.
- Using the decrease icon or (-) button, lower the setpoint to initiate a **warning** status. Verify that the external and internal speakers alarm. Also check that visual warnings on the control module are functioning.
- If relay options are being utilized for a warning state, verify they are functioning properly.
- Using the decrease icon or (-) button, lower the setpoint further to initiate a **danger** status.
- Verify that the external and internal speakers alarm. Also check that visual warnings on the control module are functioning.
- If relay options are being utilized for a danger state, verify they are functioning properly.
- Depress the override icon and adjust the setpoint back to the desired level.

3. MENU DISPLAY IDENTIFICATION

3.1 HOME SCREEN / DETAIL VIEW

The home screen or detail view provides the central point of access for all the system's range of applications. It consists of the following sections:

- Tool bar
- Sensor dashboard
- Setpoint display
- Sensor status gauge
- Touch screen button icons



You can swipe the screen to the left or right for alternate Gauge View.

3.2 TOOL BAR

(Refer to diagram on page 19)

Top Tool Bar	Function
GPS	Indicates if the Sigalarm system is receiving GPS service
GSM	Indicates GSM signal strength; Optional
Menu	This icon opens the Actions Screen

3.3 SENSOR DASHBOARD

Sensor Dashboard	Function
Sensor	Paired sensors are listed here by their name or EID
Reading	This is a numerical representation relative to the voltage displayed
Status	Indicates the status of the sensor in relation to the setpoint, 'below set', 'warning', 'danger'
Battery	Indicates battery status for each sensor

3.4 SETPOINT DISPLAY

Sensor Dashboard	Function
Setpoint	Point at which, based on E-field strength, the high-voltage alarm will enter into an alarm state. The setpoint is set by the operator.

WARNING: Changing the setpoint is critical to the ability of the proximity alarm to function as designed.

SETPOINT DISTANCE CORRELATION

The higher the numerical value of the setpoint, the closer you can get to a power line. Example: A setpoint of 90 will allow an operator to get closer to a power line than a setpoint of 20.

3.5 SENSOR STATUS GAUGE

Status Gauge	Function
Status Gauge	This gauge is a visual representation of sensor readings in relation to the setpoint

3.6 TOUCH SCREEN ICONS

Tool Bar	Function
Reset	After power is applied reverts unit to last setpoint
Increase	Increases the setpoint
One touch	Matches the setpoint to the current highest sensor reading plus five
Decreases	Decreases the setpoint
Override	The override icon can be selected in a danger state. This will put the unit in a warning state for 15 second count-down to allow the operator to move away from danger *This is especially important when the auto shutdown feature is utilized*

3.7 BUTTONS

Item	Function
Reset	After power is applied reverts unit to last setpoint, the reset button can also be held down for 10 seconds to force a system reboot
+	Increases setpoint
One Touch	Matches the setpoint to the current highest sensor reading plus five
-	Decreases the setpoint
Red	The override icon can be selected in a danger state. This will put the unit in a warning state for 15 second countdown to allow the operator to move away from danger (*This is especially important when the auto shutdown feature is utilized*)

3.8 ACTIONS SCREEN OVERVIEW

The Actions Screen provides the point of access for all the following pages:

- Admin (password protected)
- Display Settings
- Manage Remotes
- Device info
- Manage Sensors (password protected)
- Volume Adjustment

3.9 ADMIN

Action Screen	Function
Admin Icon	Adjust setpoint max, volume min and max, lock setpoint, disable alarm lockout, mute warning, Radio Frequency selection, Change Pin/password

Any adjustment that can be made from the Admin Screen should be completed while equipment is at a safe distance from power lines and in a stationary position. As an added layer of protection, access to these adjustments are password protected.

PASSWORD

Passwords should only be given to qualified persons.

ADMIN SCREEN FEATURES (ALL PASSWORD PROTECTED)

Setpoint Max: Maximum setpoint parameters can be set to limit the operator's ability to increase the setpoint from the Home Screen. For example: if the admin selects 55 as the maximum setpoint, the operator can only increase the setpoint to 55 or less. This also limits the one touch feature to 55 or less.

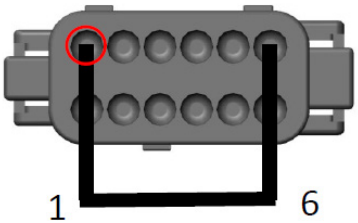
Volume Max: The volume maximum can be set to limit the operator's ability to increase the volume of the external speaker. For example: vehicles working in residential neighborhoods may require a softer alarm. This setting should never be set low enough so that ground personnel cannot hear the external speaker. This feature should always be set to the highest tolerable level.

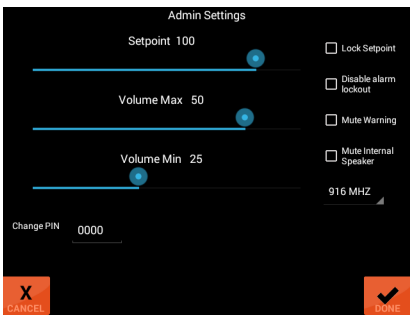
Volume Min: The volume minimum can be set so that the operator will be unable to decrease the volume. A setting of 0 means the operator can adjust the volume of the external speaker all the way down to silent. This is NEVER recommended. It is imperative that ground personnel can hear the external speaker.

Lock Setpoint: The lock setpoint feature can be selected to leave the operator with no ability to increase or decrease the setpoint.

Disable Alarm Lockout: This feature will bypass normal relay continuity in "danger" mode for emergency situations, similar to a manual override. When this box is selected, relay continuity will be configured as shown below. Proceed with extreme caution when utilizing this feature (see below).

Danger status with "disable alarm lockout" selected





DISABLE ALARM LOCKOUT

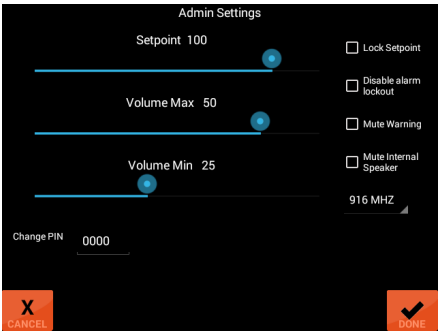
WARNING: Disable alarm lockout is only relevant if the relay cable 1 is installed and needs to be bypassed.

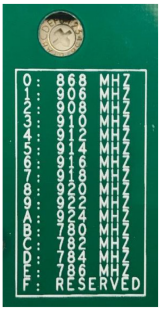
Mute Warning: This feature will mute the warning sound. Only the visual warning will still appear on screen.

Radio Frequency Selector: This feature allows you to select which radio frequency the control module will utilize. The control module and sensors must be set on the same frequency to communicate. 916 is the factory default. Use the bottom right corner to select the dropdown menu and assign the preferred radio frequency in the unlikely event that this needs to be changed.

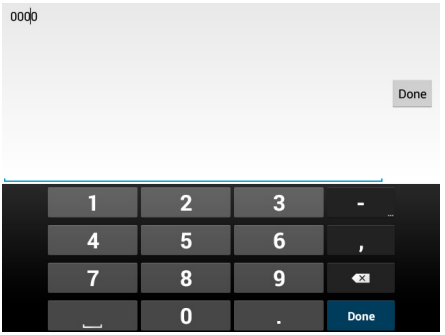
In the USA and Canada, users may only select the radio frequencies of 906MHz, 908MHz, 910MHz, 912MHz, 914MHz, 916 MHz, 918MHz, 920MHz, 922MHz, or 924MHz.

Select the matching radio frequency by turning the dial on the sensor to the desired position. Use the table printed on the sensor board as a guide.





Change Pin or Password: Tap the existing pin to change it, type in the new pin, select done to save it.



All units will have a factory preset password of 0000. Sigalarm does not have access to the password once it has been changed.

3.10 DISPLAY SETTINGS

Action Screen	Function
Display Icon	Adjust screen brightness

3.11 DEVICE INFO

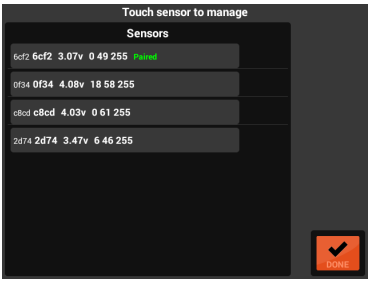
Action Screen	Function
Device info	Language, Software versions, ID, Device specification

3.12 MANAGE SENSORS (PASSWORD PROTECTED)

Action Screen	Function
Manage Sensors Icon	Add or Remove Sensors

MANAGE SENSORS FEATURES

Enter your password



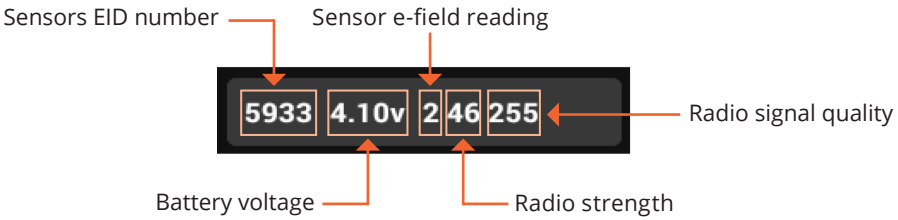
Sensors List: All sensors detected by the control modules will be listed in the screen.

- **Paired sensors** that are reporting data to this control module will say "Paired" in green text. These same sensors will appear in the Home Screen/Detail View. The installer should always verify that the serial number and quantity of sensors installed on the equipment are identical to the listed sensors in this column. Sensors can be removed simply by selecting the appropriate sensor.

Sensors that are NOT paired will not report data to this control module.

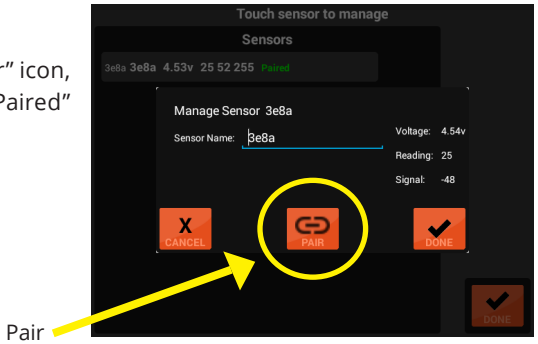
Several values associated with the sensors are displayed:

- The sensors EID number
- Sensor name (optional)
- Battery voltage
- Sensor e-field reading
- Radio strength 0-100
- Radio signal quality 0-255



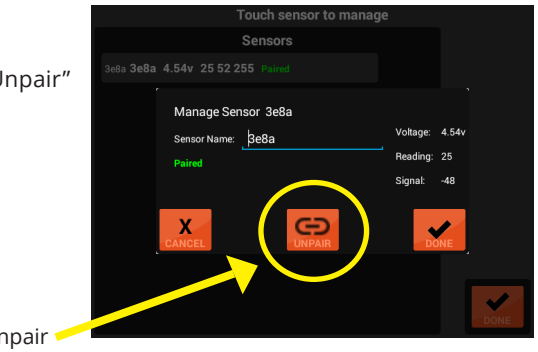
PAIRING SENSORS

To pair a sensor select the “Pair” icon, then select done. The word “Paired” in green text will now appear.



REMOVING SENSORS

To unpair a sensor, select the “Unpair” icon, then select done.



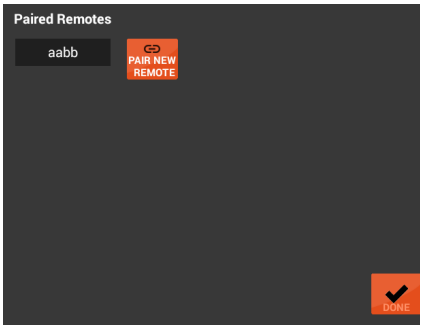
SENSOR NAME

To name a sensor (optional) in this list select the sensor by tapping it to reveal the menu, once the menu is displayed, type the name of the sensor. Then select done. Sensor can be renamed to identify which piece of equipment they are on, or possibly where the sensor is located. “Left boom knuckle” for example may be useful information to have for reporting.

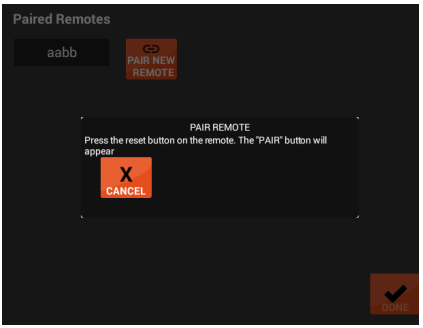
3.13 MANAGE REMOTES (PASSWORD PROTECTED)

Item	Action Screen	Function
5	Manage Remotes	Pair remote

Paired remotes will be listed in this screen. To pair remotes select Manage Remotes, enter password, select Pair New Remote, follow the prompts.



1



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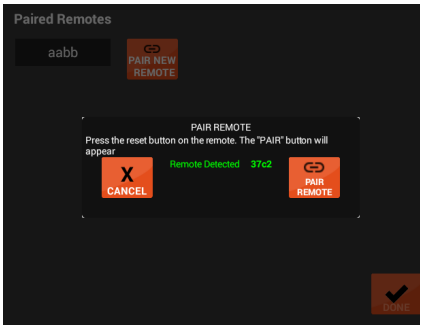

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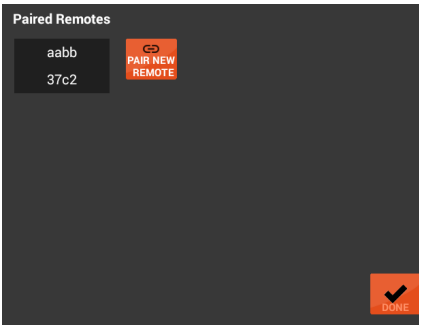

4

4. DUAL FUNCTIONALITY

SIGALARM WIRELESS POWER LINE WARNING SYSTEMS FUNCTION IN TWO WAYS

First as an **early warning system** and second as a **power line warning system.**

scan to watch video

4.1 EARLY WARNING SYSTEM

When your Sigalarm Wireless power line warning system is powered up, it will automatically be at its most sensitive setpoint of 5 (sometimes referred to as Maximum Sensitivity). The Sigalarm will provide an audible and visual alarm, warning the operator that they are in the vicinity of an AC high voltage power line. The operator does not need to set or adjust the system for it to operate in this mode; it occurs automatically. This first early warning is a reminder to perform proper job site evaluations and field surveys to identify the electrical hazards present on the job site.

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4.2 POWER LINE WARNING SYSTEM

The Sigalarm system is either pre-set up by admin or on-site by the operator to the desired MAD. See section **7. Operation** and **8. Adjusting Setpoint** for more details.

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5. GETTING STARTED

5.1 INITIAL CONTROL MODULE SET UP

Before the equipment is operated near power lines, the following control module setup must be completed.

A. Display settings
- I. Adjust brightness
- II. Adjust volume
- III. Select default page layout preference

B. Manage sensors
- I. Add or remove sensors as necessary
- II. Verify pairing

C. Manage devices (optional)
- I. Verify key fob status

6. OPERATION

6.1 WARNINGS

The operator must fully understand how the Sigalarm system functions, and its limitations before use. It is dangerous to operate any equipment directly beneath or above high voltage power lines. If multiple lines are present, the Sigalarm system should be set to the lowest voltage line, and additional OSHA precautions may be required.

6.2 OPERATING PROCEDURES

Powering up: When power is first applied, the control module will search for sensors. No data will appear while it is in the process of connecting (approx. 2 seconds). Once sensors are connected, the control module will go into a maximum setting setpoint of 5. If any power lines are in the vicinity, the alarms will sound. The operator must select the reset button to return the system to the last displayed set point.

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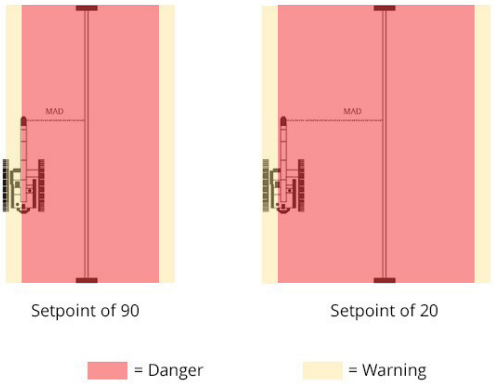
7. ADJUSTING THE SETPOINT

SETPOINT

The operator must decide what setpoint is appropriate for each and every jobsite. From the home screen or the gauge view, you'll see the setpoint. It's controlled by the operator. The higher the setpoint, the closer you are allowing yourself to be to the AC overhead powerlines. For an example, a set point of 90 will allow an operator to get closer to a powerline than a set point of 20. The setpoint values range from 5 to 120. The setpoint is displayed on both the home screen detail view and the gauge view.



To adjust the setpoint, position the equipment at the desired location where the operator would like an alarm state, then depress the "one touch" button. This will change the setpoint to the greatest numerical sensor reading +5 at that position. When adjusting the setpoint, always position the equipment far enough away from the power line to give the operator time to react to an alarm.

The Sigalarm system should be set to give a warning no closer than the minimum approach distance or MAD from the power line. Setpoint adjustments can also be made utilizing the increase or decrease buttons. Use a spotter to help you determine a safe position while adjusting the setpoint.

SIGNIFICANT CHANGES IN BOOM LENGTH AND/OR ANGLE MAY REQUIRE A SETPOINT ADJUSTMENT THAT DIFFERS FROM THE INITIAL SETPOINT SELECTION AT SETUP.

8. SENSOR READINGS

Sensor readings are displayed in two places on the control module: the Home Screen and the Gauge View. The sensor reading is vital information. The reading is displayed data that is transmitted from the sensor and corresponds to the voltage detection.

STATUS: BELOW SET

A below set status occurs when all of the sensors have a reading numerically lower than the displayed setpoint. This means the equipment is in the defined safe zone set by the operator or admin.

STATUS: WARNING

A warning status occurs when one or more sensors are within 80% of the setpoint. This means the equipment is getting closer to but has not yet reached the danger zone.

STATUS: DANGER

A danger status occurs when one of the sensor readings matches the setpoint. This means the equipment has crossed into the danger zone. No setpoint adjustments can be made during a danger status.

STATUS: NO DATA

A no data status occurs when the sensor is not transmitting data to the control module for more than two seconds. This means there is no protection zone around the “down” sensor and the equipment is no longer detecting voltage. Do not operate equipment with a no data status. The system will beep alerting the operator of a no data status. See additional no data notes in the troubleshooting section.

9. FIELD OPERATIONS

9.1 OPERATING WITH A SAFE READING / BELOW SET

While operating your equipment, your Sigalarm should display a Safe Reading / Below Set:

- The sensor reading is below the setpoint and you are at a safe distance away from power lines.
- It is common to have a reading of zero, it is only a problem if the sensor is near voltage.
    - If the operator feels there should be a reading of voltage, then he should stop operation and troubleshoot the system.

9.2 OPERATING WITH A WARNING READING

While in the course of your work the equipment starts moving toward the AC overhead power lines, the sensor reading will begin to rise. If the equipment gets to a location where the sensor reading is approaching the setpoint value, the Sigalarm will go into a warning state.

- At this time the operator should stop movement and evaluate their situation.
- Once the operator identifies the source of the warning, they should move the equipment away from the AC overhead power lines until the Sigalarm returns to a Safe Reading / Below Set.

9.3 OPERATING WITH A DANGER READING

If the operator continues to move toward the AC overhead power line, then the Sigalarm will go from a Warning to a DANGER state.

- The operator should stop movement of the equipment and identify the power source.
- Once the operator identifies the source of the warning, they should move the equipment away from the AC overhead power lines until the Sigalarm returns to a Safe Reading / Below Set.

9.4 OPERATING WITH AUTO-SHUTDOWN INSTALLED

Sigalarm has internal relays that can be used in many different ways. Some employers install a Wireless Sigalarm in such a way that the equipment will stop moving in a Warning or Danger state. This is referred to as “Auto-Shutdown” and is a common installation technique.

For example, a relay cable can be wired to an excavator's hydraulics so the circuit is interrupted and hydraulic movement is stopped in a Danger state.

In the event of a Danger state, where equipment movement has been interrupted, the operator must use the Override feature in order to get out of the situation.

AUTO-SHUTDOWN IS NEVER RECOMMENDED FOR EQUIPMENT MOVING A LOAD.

9.5 OVERRIDE FEATURE FOR OPERATING WITH AUTO-SHUTDOWN

If a Danger status occurs, the operator can depress the Override icon. The control module will then display an override countdown. The override countdown keeps the unit in a Warning state for 15 seconds. If the Auto-Shutdown feature has been utilized, then this will close the opened circuit allowing the operator to pull away from the line.

9.6 OPERATING NEAR INTERSECTING POWER LINES

Intersecting power lines, especially of different voltages, can create complex E-fields. Extreme caution should be taken when working around these conditions. Use additional layers of protection whenever possible, such as a dedicated spotter.

9.7 REMOTE CONTROL OPERATION

Some units are equipped with remote control capabilities. Those units can be operated as follows: The control module will automatically go into maximum sensitivity when power is applied. The operator can depress the reset button from the remote key fob. If a danger status occurs, the operator can depress the override button on the remote key fob. The control module will then display an override countdown. The override countdown keeps the unit in a warning state for 15 seconds to allow the operator to pull away from the power line.

10. DATA MANAGEMENT

DATA LOGGER

All control modules record events up to 2 gigs of storage. This data can be accessed through the Sigalarm App.

11. SPECIFICATIONS

11.1 DIMENSIONS

Control Module	W 7.5	D 3.0	H 5.25
Sensor	W 4.5	D 2.5	H 1.5
External Speaker	W 5	D 5	H 5
Cables	20 Ft		

11.2 MATERIAL

Control Module	ABS plastic enclosure
Sensor Enclosure	Built with ABS plastic
External Speaker	ABS with stainless steel hardware
Cables	18 AWG stranded tinned copper conductors with PVC insulation, water blocking tape, foil shield and PVC jacket

11.3 POWER SUPPLY REQUIREMENTS

12-48 Volt Operating voltage range or ranges (input)

- 12 volts Standby < 0.05 AMP DC Max Operating Peak 1 AMP DC Max
- 24 volts; Standby < 0.05 AMP DC Max Operating Peak 0.5 AMP DC Max

11.4 E-FIELD DETECTION

Electric Field 60 Hz or 50Hz

selector switch located on board default is 60Hz

- 50Hz or 60Hz AC, this system is designed for detecting 7,200v AC or more at distances of 10ft or greater. While the systems can detect lower voltages, it should not be relied upon to provide a warning for voltages less than 7,200v AC.
- Sigalarm systems are not designed to detect DC voltage

11.5 RANGE OF EFFECTIVENESS

Voltage Detection – Between 10 to 200 feet depending on voltage

Zigbee Communication – 27 meters (between sensors and control module)

11.6 SENSOR BATTERY

Each sensor is equipped with a lithium polymer battery that should last approximately 660 hours with no sunlight. Variables such as extreme heat or cold will affect estimated battery life. The solar panels will continually charge this battery for years. Completely dead batteries will take approximately 24 hours to charge (at approximately 100 milliamps per hour). If the battery is allowed to run down to 3.0 volts or less, the sensor will enter self-preservation mode and shut down. The sensor will resume operations at 3.2 volts and, is considered fully charged at 3.75 volts.

The sensor battery can be charged using any micro USB. Plug the USB in the (J1) port. The switch must be in the on position to charge the battery. Periodic cleaning of the solar panels may be necessary to preserve the charging capabilities.

11.7 CONTROL MODULE SCREEN

5.7 Full color display, High Brightness 900 Nits, 640 x 480 res.

11.8 TEMPERATURE SPECIFICATIONS

-10° c to +70°c

11.9 SPEAKER/HORN

Freq Resp: 300-15 kHz
Power Rating 15W max
Sensitivity: 105dB / 1W/1M

11.10 OPERATING HUMIDITY RANGE

20% - 90%

12. TROUBLESHOOTING

12.1 WILL NOT POWER UP

- Verify the wiring per the instructions in the manual (sections 2.3 - 2.4).
- Hold down the manual reset button for 15 seconds to force a “hard reboot”.
- Unplug the power cord for 60 seconds and restart.
- Call Sigalarm at 800-589-3769 for remote assistance if available.

12.2 NO DATA

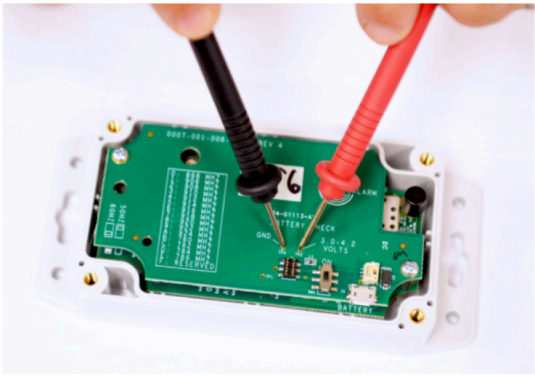
When there is no data, it could be a few things:

- The distance between the sensor and the control module may be too great, try repositioning.
- Verify that the battery is charged using test points on the board.
- Check that the sensor is turned on.

If the radio isn't communicating:

- Check the radio strength and quality. To check radio strength and quality, go to the Manage Sensors screen. The radio strength minimum should be 10. A radio quality minimum should be 200. To adjust, reposition the sensor on equipment–better line of sight can give you better radio strength and quality–or check the distance between the sensor and control module.
- Check for an obstruction between line of sight and control module.

The battery may be dead. The battery strength can be measured by placing a voltmeter on test points 2 and 3. A fully charged battery tests at 3.72 or greater.



The sensor is not turned on:

- All sensors are shipped turned off.

The frequency of the sensor and control module does not match:

- Change the frequencies to matching frequencies.

12.3 SENSOR READING IS 0

- It is common to have a reading of zero. It is only a problem if the sensor is near voltage.
- Test that the sensor is detecting voltage by plugging in an extension cord and moving it near the sensor, check that the reading increases.
- The voltage may be too low to detect at that distance.
- The power line may be too far away for the sensor to detect at that voltage.

12.4 FROZEN TOUCH SCREEN

- If you try to make adjustments to the setpoint using the Touch Screen with no response, the screen might be frozen. Try using the manual buttons.
- If the manual buttons allow you to adjust the setpoint, then power cycle the unit to resolve the situation. Never touch the screen while the system is powering up to avoid this problem.
- Hold down the manual Reset button for 15 seconds to force a "hard reboot."

12.5 CANNOT ADJUST SETPOINT

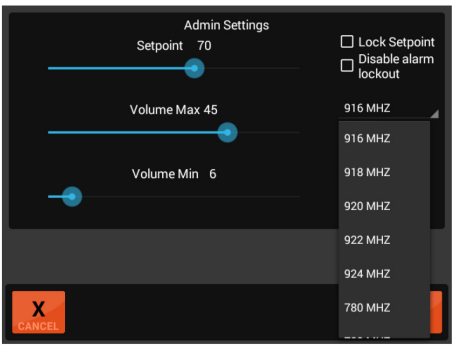
- Verify that the system is not in a danger state. Adjustments cannot be made when the system is in a danger state.
- Verify that the Lock Setpoint feature in the Admin Screen is not selected.
- Verify that the max setpoint parameter in the Admin Screen is set in such a way that allows adjustment.

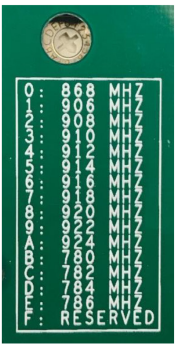
12.6 RADIO FREQUENCY INTERFERENCE

Sigalarm has radio frequency filters built in. However, there are times that very strong signals can disrupt the normal functionality and make the Sigalarm alarm (for example near an airport). In this case you may want to change the frequency.

To change the frequency, follow these steps.

1. Select Admin Settings.
2. Put in the admin password.
3. Select the dropdown on the right and set it to the desired frequency.
4. Set the sensor to the same frequency as the control module.





12.7 RADIO TOWERS AND OTHER HIGH ENERGY TRANSMITTER NOTES

High energy transmitters such as those seen around airports and cell towers can cause interference with the wireless Sigalarm system. For example, the sensor reading could fluctuate. So, use extreme caution when working around these special circumstances.

13. REGULATORY WARNINGS

13.1 FCC COMPLIANCE STATEMENT

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION: The grantee is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. Such modifications could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with the FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and all persons. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

13.2 CANADIAN COMPLIANCE STATEMENT

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada license-exempt RSS(s). Operation is subject to the following two conditions:

(1) This device may not cause interference.
(2) This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

(1) L'appareil ne doit pas produire de brouillage;
(2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible

NOTE: Afin d'assurer la conformité aux exigences de la FCC en matière d'exposition aux radiofréquences, aucune modification de l'antenne ou de l'appareil n'est autorisée. Toute modification de l'antenne ou de l'appareil pourrait avoir pour conséquence que l'appareil dépasse les exigences en matière d'exposition aux radiofréquences et annule le droit de l'utilisateur de faire fonctionner l'appareil.

14. SIGALARM SALES TERMS AND CONDITIONS:

Allied Safety Systems Inc, DBA Sigalarm, is herein referred to either as "Sigalarm" or "Seller" and the customer or person or entity purchasing Products or Services (hereinafter collectively referred to as "Products") is referred to as the "Buyer". These Terms and Conditions, any price list or schedule, quotation, acknowledgment, or invoice from Seller relevant to the sale of the Products and all documents incorporated by specific reference therein, constitute the complete and exclusive statement of the terms of the agreement governing the sale of Products by Seller to Buyer. Buyer's acceptance of the Products will serve to verify Buyer's acceptance of these terms and conditions without change, modification, or addition. No additional terms in Buyer's purchase order(s) or other Buyer documents are acceptable to Seller unless agreed upon in writing by the Parties. Sigalarm reserves the right for any reason and at its sole discretion to refuse orders.

1. PRICES AND TAXES: Unless a fixed price is quoted, the price at which this order is accepted is subject to adjustment to Seller's current pricing at the time the order is placed. Any current or known future tax or governmental charge affecting Seller's costs or Production, sale, or delivery or of which Seller is otherwise required to pay or collect in connection with the sale, delivery, processing, or use of the Product(s) (but excluding any income tax on Seller's profit) shall be for Buyer's account and can, at the sole discretion, be added to the price of the Product(s).

2. TERMS OF PAYMENT: All transactions will be invoiced by Seller and transacted in U.S. currency. Seller shall have the right, among other remedies, either to terminate this agreement or to suspend further performance under this and/or other agreements with the Buyer in the event Buyer fails to make any payment when due. Buyer shall be liable for all expenses, including reasonable attorneys' fees, relating to the collection of past due amounts. Should Buyer's financial responsibility become unsatisfactory to Seller, cash payments or other form of security satisfactory to Sigalarm may be required for future deliveries as well as for the Product(s) already delivered. If such cash payment or other security is not provided, in addition to Sigalarm's other rights and remedies, Sigalarm can discontinue deliveries. Sigalarm will apply a finance charge of up to three (3) percent for payments made by credit card.

3. SHIPMENT AND DELIVERY: Unless otherwise expressly provided, shipments are made F.O.B. from Seller's shipping location(s). The responsibility for loss or damage shall pass from Seller to Buyer upon delivery to and receipt of acceptance

by common carrier. Any claims for shortages or damages suffered in transit are the responsibility of Buyer and shall be submitted by the Buyer directly to the carrier. Shortages or damages caused by the shipper must be acknowledged and signed for at the time of delivery. While Seller will use all reasonable commercial efforts to maintain the delivery date(s) acknowledged or quoted by Seller, all shipping dates are approximate and not guaranteed. Seller reserves the right to make partial shipments. Seller will not ship Product unless Buyer has provided shipping instructions to the Seller. If the shipment of the Product(s) is postponed or delayed by the Buyer for any reason, Buyer agrees to reimburse Seller for any and all applicable handling and storage costs and other additional expenses resulting from the delay, if any. All claims for shipping errors, lost shipments, or any other discrepancies that are considered by Buyer to be the responsibility of the Seller must be made within ten (10) days of receipt of the Product(s) to be considered allowable claims.

4. SIGALARM LIMITED WARRANTY: Sigalarm covers its Products with a manufacturer's warranty against defects in material or workmanship for a period of 1 year from the date of sale to the first purchaser unless otherwise stated by Sigalarm in writing. To exercise a warranty claim(s), the Product(s) must be delivered to Sigalarm for examination. RMA forms must be completed in full to start the warranty process.

Warranties shall not apply to any Product(s) which:

(a) Have been repaired or altered outside a designated Sigalarm facility or if Buyer's actions have impaired the Product(s) serviceability;

(b) Have been subjected to improper handling, installation, operation, maintenance, repair or alteration; and

(c) Have been subjected to abnormal wear and tear, misuse, negligence, improper installation or accident, or failure to follow the instructions and precautions in the instruction manual.

Seller's obligation under this warranty, and the Buyer's exclusive remedy under a warranty claim, at the Seller's sole discretion, shall be limited to repair or replacement of any allegedly defective Product(s) or issuance of a credit against future purchases. Seller requires the return of any allegedly defective Product(s) before honoring a claim. Returned Product(s) is subject to inspection, and if examination does not disclose any defect covered by this warranty, replacement of such Product(s) or the issuance of a credit will not be granted.
The foregoing constitutes Sigalarm's sole and complete warranty responsibility, and Buyer's exclusive remedy regardless of Buyer's use of, or the outcomes of the use of, the Product(s). It is agreed between the Parties that no other warranties expressed or implied are associated with the Product(s). No employee, agent,

dealer, or other person is authorized to provide a warranty on behalf of Sigalarm.

5. LIMITATION OF REMEDY AND LIABILITY: The sole and exclusive remedy for any warranty hereunder shall be limited to repair, correction, replacement or credit as set forth in section 4. SELLER MAKES NO OTHER WARRANTY WITH RESPECT TO THE PRODUCTS, AND DISCLAIMS ANY AND ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. SIGALARM SHALL NOT BE LIABLE FOR DAMAGES CAUSED BY DELAY IN PERFORMANCE OF ITS PRODUCTS, AND IN NO EVENT, REGARDLESS OF THE FORM OF THE CLAIM OR CAUSE OF ACTION (WHETHER BASED IN CONTRACT, NEGLIGENCE, LIABILITY, OTHER TORT LAW, OR OTHERWISE), REGARDLESS OF WHETHER SUCH DAMAGES WERE FORESEEABLE AND WHETHER OR NOT SELLER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, AND NOTWITHSTANDING THE FAILURE OF ANY AGREED OR OTHER REMEDY OF ITS ESSENTIAL PURPOSE. UNDER NO CIRCUMSTANCES SHALL SIGALARM'S LIABILITY TO BUYER AND/OR ITS CUSTOMERS EXCEED THE PRICE PAID BY BUYER FOR THE SPECIFIC PRODUCT(S) GIVING RISE TO THE CLAIM OR CAUSE OF ACTION. BUYER SHALL INDEMNIFY SIGALARM AGAINST ANY DAMAGES IN EXCESS THEREOF.

BUYER AGREES THAT IN NO EVENT SHALL SIGALARM'S LIABILITY TO BUYER AND/OR ITS CUSTOMERS INCLUDE DIRECT, INDIRECT, INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES OF ANY KIND OR NATURE IN CONNECTION WITH THE SALE, RESALE OR USE OF THE PRODUCTS. SUCH DAMAGES ARE SPECIFCALLY WAIVED BY BUYER AND TO THE EXTENT SUCH DAMAGES ARE CLAIMED, BUYER WILL INDEMNIFY SIGALARM.

The term "consequential damages" shall include but not limited to, loss of anticipated profits, business interruption, loss of revenue, loss of or damage to property, equipment, data, or loss of reputation. Furthermore, Buyer shall indemnify and hold Sigalarm harmless from any liability to Buyer, Buyer's employees, workers, contractors, sub-contractors, or any other persons arising out of Buyer's, and any other persons' use of the Product(s.)

All instructions and warnings supplied by Sigalarm will be passed on to all persons who use the Product(s). Sigalarm's Product(s) are to be strictly used in their recommended applications and all warning labels applied to the Product(s) shall be left intact.

It is impossible to eliminate all risks associated with the use of the Product(s). Risks of serious injury or death, including risks associated with electrocution, arcing and thermal burns, are inherent in work in and around energized electrical systems. Such risks exist in a variety of electrical systems and equipment to which Product(s) may be utilized. The manner of use, the application, the weather and the environmental conditions or other unknown factors that may exist, are beyond the control of Sigalarm. Sigalarm does not agree to be an insurer against these risks

and shall have no liability for any claims arising from such risks. The Buyer and/or User of Sigalarm Product(s) accepts all risk associated with the use of the Sigalarm Product(s) .

6. EXCUSE OF PERFORMANCE (FORCE MAJEURE): Sigalarm shall not be liable for delays in performance or for non-performance due to acts of God; acts of Buyer; acts of war; fire, flood, weather, sabotage, strikes, labor disputes, civil disturbances, riot, governmental requests, restrictions, allocations, laws, regulations, orders or actions, unavailability of or delays in transportation, default of suppliers, or unforeseen circumstances, or events beyond Sigalarm's reasonable control. Deliveries or other performance may be suspended for an appropriate period or cancelled by Sigalarm upon notice to Buyer in the event of any of the foregoing, but the balance of this agreement shall otherwise remain unaffected. If Sigalarm determines that its ability to supply the total demand for the Product(s) or to obtain material used directly or indirectly in the manufacture of the Product(s), is hindered, limited or made impracticable due to causes set forth herein, Sigalarm may allocate its available supply of the Product(s) or such material (without obligation to acquire other supplies of any such Product(s) or materials) among itself and its purchasers on such basis as Sigalarm determines to be equitable without liability for any failure of performance which may result therefrom.

7. CHANGES: Sigalarm reserves the right to change designs and specifications for standard Product(s) without prior notice to Buyer, but not with respect to a custom Product(s) being made specifically for Buyer. Sigalarm shall have no obligation to install or make such change in any Product(s) manufactured prior to the date of such change.

8. ASSIGNMENT: Buyer shall not assign its rights or delegate its duties hereunder or any interest herein without the prior written consent of Sigalarm, which will not be unreasonably withheld. Any such assignment, without written consent, shall be considered canceled.

9. INSTALLATION: Buyer shall be responsible for receiving, inspecting, testing, storing, installing, operator training, starting up and maintaining the Sigalarm Product(s).

10. INSPECTION/TESTING: Buyer, at its expense, agrees that it will promptly inspect the Product(s) upon delivery but no later than fifteen (15) days from the date of receipt of the Product(s). Buyer shall deliver to Seller within twenty (20) days of inspection, documentation of any deficiencies, defects, variations from specifications or complaints of any kind with respect to the quantity, quality, condition, shipment, performance, or appearance of the Product(s) as received

by Buyer. In the event no such written notice is provided to the Seller, Buyer shall be deemed conclusively to have inspected and accepted all such Product(s) unconditionally and to have waived any and all rights and claims, including without limitation any right to reject the Product(s) or to claim damages in respect thereof.

Buyer may not return Product(s) without first advising Seller of the reasons therefore, obtaining from Seller an authorization number and observing such instructions as Sigalarm gives them in authorizing such return. In the event a return is authorized by Sigalarm, a restocking fee for any Product(s) requiring repackaging or maintenance of twenty-five percent (25%) shall be assessed to Buyer in the final credit amount.

11. SERVICES: If this agreement requires Sigalarm to perform or provide any services, Sigalarm (including without limitation its successors, assigns, agents or any person or entity acting at Sigalarm's direction) shall not be responsible for any damages, claims, liabilities, or expenses of any nature arising out of such services.

12. U.S. EXPORT CONTROL LAWS: All Products sold to Buyer by Seller hereunder are subject to U.S. Export Control Laws. Buyer agrees not to re-sell or divert any goods contrary to U.S. Export Laws.

13. COMPLIANCE: Seller shall comply with all applicable federal, state, or local laws, rules, regulations, or orders. The Seller shall also comply with Executive Order 11246, as amended by Executive Order 11375, and the applicable provisions of the Office of Federal Contract Compliance Programs (OFCCP), 41 CFR Part 60, which are incorporated herein by this reference. The Buyer shall comply with all applicable federal, state, or local laws, rules, regulations or orders including but not limited to the Foreign Corrupt Practices Act of 1977, as amended. Sigalarm reserves the right to delay or refuse delivery if requests for reasonable assurances of Buyer's compliance are not provided as requested. All OSHA regulations including but not limited to the cranes and derricks in construction standard 29 CFR Part 1926, must be followed by Buyer's or Buyer's employees.

14. MISCELLANEOUS: These terms and conditions supersede all other communications, negotiations and prior oral or written statements regarding the subject matter hereof. No change, modification, rescission, discharge, abandonment, or waiver of these terms and conditions shall be binding upon Sigalarm unless made in writing and signed on its behalf by its duly authorized representative. No conditions, circumstance, usage, dealing, or performance, understanding or agreement purporting to modify, vary, explain, or supplement these terms and conditions shall be binding unless made in writing and signed by Sigalarm.

No modification shall be affected by Sigalarm's receipt or acceptance of Buyer's purchase orders, shipping instruction forms, of other documentation containing terms at variance with or in addition to those set forth herein, all of which are objected to by Sigalarm. Any such modifications or additional terms are specifically rejected by Sigalarm. No waiver by Sigalarm with respect to any breach or default of any right or remedy and no course of dealing, shall be deemed to constitute a continuing waiver of any other breach or default of any other right or remedy, unless such waiver is expressed in writing and signed by Sigalarm. All typographical or clerical errors made by Sigalarm in any quotation, acknowledgment or publication are subject to correction. Validity and performance relating to the interpretation and effect of this agreement shall be governed by the laws of the state of Florida without regard to its conflict of law principles.

15. DISPUTE RESOLUTION: In the event of any dispute including, but not limited to, breach of contract, breach of warranty, claims based in tort, negligence, Product liability, fraud, marketing, state or federal regulations, claims regarding the enforceability of this limited warranty, and the waiver of class action trials between Buyer and Seller, either Buyer or Seller may choose to resolve the dispute by binding arbitration, as described below, instead of in court.

This means that if either Buyer or Seller choose binding arbitration, neither party shall have the right to litigate such claim in court or have a jury trial. Discovery and appeal rights are limited in binding arbitration. Buyer and Seller agree that the proper venue, if Arbitration is not chosen by Buyer or Seller, of all actions arising in connection herewith shall be only in the state of Florida and the parties agree to submit to such jurisdiction. No action, regardless of form, arising out of transactions relating to the agreement, may be brought by either party more than two (2) years after the cause of action has accrued. The U.N. Convention on Contracts for the International Sales of Goods shall not apply to this agreement.

16. CLASS ACTION WAIVER: Binding arbitration must be on an individual basis. This means neither Buyer nor Seller may join or consolidate Claims in arbitration by or against others, or litigate in court or Arbitrate any claims as a representative or member of a class or in a private attorney general capacity.

Administration of arbitration: The binding arbitration must be administered by the American Arbitration Association ("AAA") in accordance with its Commercial Arbitration Rules and/or Supplementary Procedures for Consumer-Related Disputes (including proceedings to mitigate costs of travel). This binding arbitration is governed by the Federal Arbitration Act ("FAA") (9 USC §1, et. seq.) which shall govern its interpretation and enforcement. The binding arbitration shall be held

at a location determined by AAA or at such other location as mutually agreed to.

In addition to the terms stated above, the following will apply to the binding arbitration: (1) the arbitrator, and not any federal, state, or local court or agency, will have exclusive authority to resolve any dispute relating to the interpretation, applicability, enforceability or formation of this Agreement including any claim that all or any part of this Agreement is void or voidable; (2) the arbitrator shall apply Florida law consistent with the FAA.

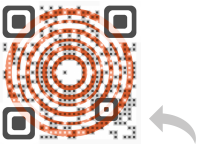
NOTES:

Customers wishing to return units to Sigalarm for any reason must complete the Return Material Authorization (RMA) form before returning the units. This includes both Warranty and Out of Warranty repairs.

Send unit to 4150 St. Johns Pkwy, Ste 1002 Sanford FL 32771
Attn: Warehouse Service Technician.

TO DOWNLOAD RMA FORM VISIT:

SIGALARMINC.COM/RMA



scan to download form

WE'RE IN THE BUSINESS OF SAVING LIVES