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The
MarineGuard
Series 01 and 02



MG01C Package



MG02C Package

Each year, more people are turning to MarineGuard Network's versatile boat alarm to protect their vessels. The MG01C and MG02C are basic and compact security systems designed specifically for the protection of smaller boats. The controls are also ideal for specialty craft of various types. Ex. Cars, RV's, aircraft, etc. MarineGuard systems utilize the unique and invisible Deck Sensor (Pulsor). Monitoring the stress on the boats deck, the Deck Sensor will trigger an alarm only when a person steps into a protected area. The control is encapsulated for environment protection and is installed by simple screw terminal connections. Each system is hand assembled in the USA and passes multiple phases of testing before it leaves the factory. When installed correctly, MarineGuard's security system will provide satisfaction and a false-alarm free experience that will become part of your life.

Operating directly from the boats batteries, a low current consumption allows the system to operate during storage or other extended periods of vacancy. The systems have two inputs. One is for deck sensors. The other is for auxiliary devices (contacts, etc). The system can accept Normally Open security devices. These devices will trigger an armed system. Alarm condition will last for two minutes. During this time the siren will sound and 12-volt lights (if used) will illuminate. After two minutes the system will reset and wait for another violation. Arming and disarming is accomplished by wireless key chain transmitters.

For The ultimate system, add GPS monitoring and know exactly where the boat is located should it be moved. All systems are designed to incorporate 24 hour monitoring by MarineGuard Network. They have outputs to monitor alarm condition and system status (armed/disarmed). If utilizing MarineGuard Network Monitoring, alarm signals can be sent to any existing pagers, cell phones, email addresses, or a professional 24 hour central station.

If you are not satisfied with your system for any reason, you may return it to us within 45 days of purchase for a refund.

For questions or technical support
1-800-648-4301 / (631) 728-3986
www.sureaction.com

System Components

- (1) Control Panel
- (1) System Status L.E.D
- (2) Keychain transmitters
- (1) Siren

System Accessories (Purchased separately)

- * Pulsors / Deck Sensors
- * Contacts w/ Magnet
- * Wire
- * Crimps

The Basics of Installation

Plan the system before beginning installation:

1. Determine location(s) of Pulsor(s)
2. Determine if you will be connecting to the existing horn or an additional siren
3. Determine if you will be connecting to the Headlight
4. Determine if you will be using magnetic contacts to protect hinges compartments
5. Determine how wiring is to be accomplished. (Recommended: 18-20 AWM)

Recommended Sequence of Installation

1. Mount Pulsors and any accessories
2. Run Wire
3. Attach wires to control panel
4. Mount control panel
5. Power system
6. Test system

The Pulsor

The Pulsor / deck sensor is the basis of the system. It is the most stable and versatile motion detector available. Environmentally sealed and utilizing marine grade wire leads, Pulsors are ideal for indoor and outdoor applications. The Pulsor is completely invisible because it is epoxied under the deck where it can not be seen. It is then hardwired (home-run) back to the control panel.

Deck sensors are not affected by birds, sunlight, wind, noise, or normal vibration. The sensing element is a high-tech crystal that stretches and compresses when the deck bends. This is interpreted by the internal processor which triggers the alarm. Pulsors have been time tested for nearly 30 years. Year after year, indoors and outdoors, the Pulsor will outperform any other motion detector.



ENHP



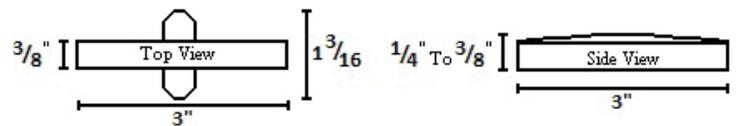
DSE



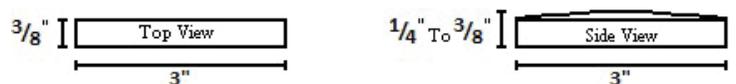
HPP



XHP



The diagram shows tabs on the sensors. During installation, the tabs may be removed for the following dimensions.



Daily Operation

Red Status L.E.D

The Status L.E.D is a visual indicator of what state the security system is in at any given time. The L.E.D is normally placed in a high visibility area. One Red status L.E.D is supplied with the system. Fit L.E.D to a 5/16" mounting hole.

Off	=	System is disarmed	or	There is no power to the system.
Slow Flash (1 @ 5 Sec.)	=	System is Armed		
Fast Flash (1 @ 1/2 Sec.)	=	System is in 15 second arming countdown	or	15 second pre-alarm countdown
On	=	System is in or has been in alarm condition		

Arming and Disarming

The primary means of arming and disarming is by wireless keychain transmitter. When the transmitter button is pressed the Red System Status L.E.D will begin a fast flash indicating a 15 second countdown. After 15 seconds the L.E.D will begin a slow flash indicating the system is fully armed. If a zone is in fault condition when the countdown completes, the L.E.D will turn off completely indicating the system has entered "Sleep" Mode. Sleep Mode is to be considered a disarmed system. **Remember:** Any input in alarm condition will prevent the system from arming.

Arming and disarming will also be confirmed by the siren and/or lights. The system will confirm arming twice. Once at initial arming and again at the completion of the 15 second arming delay. For silent arming/disarming, the Red Status L.E.D will flash the same pattern that the siren/lights would have followed.

First Arming Confirmation

- 1 Chirp = Entering arming delay with all zones normal.
- 3 Chirps = Entering arming delay with a zone faulted.

Second Arming Confirmation (Occurs after 15 sec. arming delay)

- 1 Chirp = System armed with all zones normal.
- 3 Chirps = System did not arm due to zone fault. (Sleep mode)

Disarming Confirmation

- 2 Chirps = No alarm condition occurred while system was armed.
- 4 Chirps = Alarm condition occurred while system was armed.

Red L.E.D Light
Confirms transmission when the button is pressed.

Transmitter Button
2 seconds or less for arm/disarm with siren/light confirmation.

3-4 seconds for arm/disarm without siren/light confirmation.

6 seconds for panic. Panic will activate lights and siren until the button is pressed twice rapidly. This action will occur whether the system is armed or disarmed.



The manual override terminal serves the same function as the keyfarb. It allows for arming/disarming in case of a lost/non-functional keyfarb or simply as an auxiliary arm/disarm method.

15 Second Alarm Delay and Bilge Circuit

If the system is armed and a violation is detected, the system will enter a 15 second alarm delay. During this time, the Red System status L.E.D will flash fast. If the system is not disarmed within 15 seconds, full alarm condition will occur. This feature is to help avoid accidentally triggering the alarm.

The bilge circuit is a twenty-four hour circuit and operates whether the system is armed or disarmed. Upon detection of high water the system provides a Ground (0V@50mA) output to trigger an auxiliary device. The ground output will remain active for the duration of the high water condition. A high water condition will prevent the system from arming.

Alarm Condition

Alarm condition will last for two minutes if the system is not disarmed. After two minutes, the system will reset and wait for another violation. During alarm condition, the lights will be illuminated and the siren will sound. The Red system status L.E.D will be on steady during alarm condition and will remain until the system is disarmed. If another violation is detected, the LED will flash fast during the 15 second countdown and will then return to the solid ON state if the system is not disarmed. Alarm condition during the "Armed" state will be indicating by 4 siren chirps/ light flashed upon disarming.

- * An alarm after Manual (keyfarb/momentary switch) arming will result in the lights and siren being steady "On" during alarm condition.

Placing the Pulsors

- * Helm Area
- * Gunwales
- * Various location on deck
- * Hatches - The Pulsors are epoxied directly to the hatches near the hinge. They should be placed in locations that will flex when someone lifts the hatch. The sensor will come with all necessary equipment for installation (epoxy, crimps, mixing sticks, and hand cleaner).



Installing the Pulsors

Note: Install the Pulsors first. This gives the epoxy time to cure while you complete the remainder of the installation.

- * The area the Pulsor is to be mounted should be clean of any dirt or oil. You want to epoxy to clean, solid material.
- * Warm and thoroughly mix the epoxy. The epoxy should be approximately 70 degrees F., and should be mixed for around 15 seconds.

TIP: Many people find it convenient to place the epoxy packets in their pocket while they determine how they want to lay out the system.

- * Use one package of epoxy per sensor. Place a generous layer of epoxy onto the substrate of the sensor and touch the sensor into place. Hold the sensor in place with 3-inch tape while the epoxy sets. (Do not clamp the sensor too tightly. You do not want to squeeze out all the epoxy). The tape can later be left or removed with no consequence to system operation.

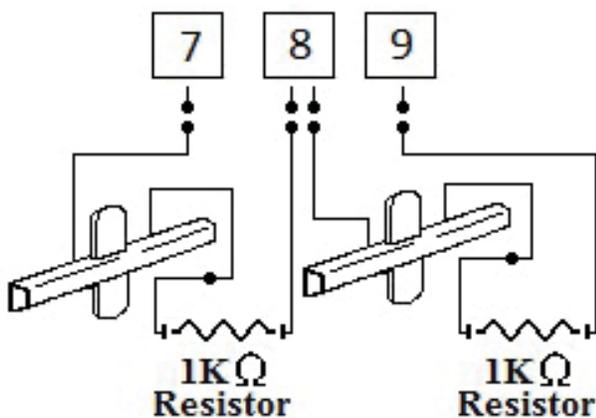
The epoxy has a five-minute work time before it sets. It then will cure for up to 24 hours. When fully cured the epoxy should be rock hard. After approximately four hours it will be hard enough for you to test. You can still walk across the deck while the epoxy is curing.

Wiring the Pulsors

Wire the sensors as shown. Polarity is not important

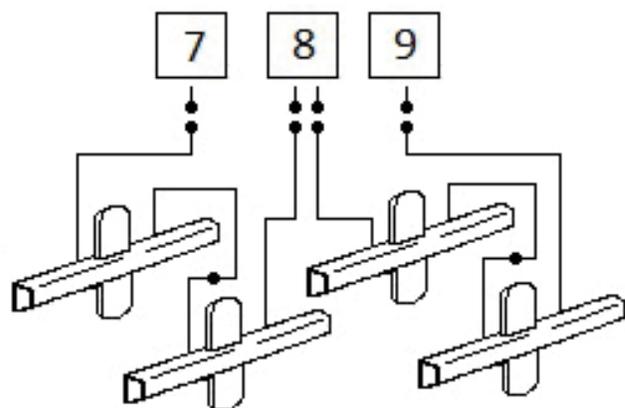
If no sensors are being used, use 1K ohm resistors instead.

Even if not using sensors, the circuit must be satisfied for the system to arm.



Two sensor install
w/ ENHP+, HPP+, DSE2 Sensors

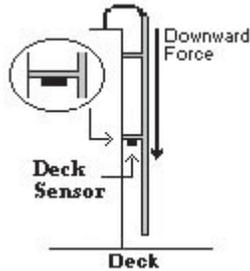
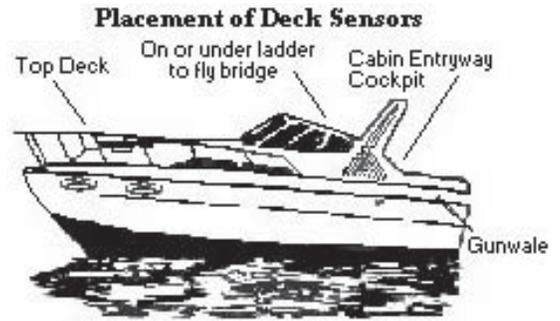
or



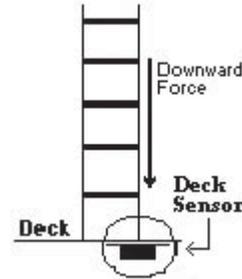
Four sensor install
w/ ENHP+, HPP+, DSE2 Sensors

Placing the Pulsors

Each Pulsor can be compared to a miniature land mine. They should then be placed in areas where traffic is most likely to pass. When an intruder steps into the sensing area the alarm will trigger. Gunwales, cockpits, and cabin entryways are effective and popular traps depending on the type of boat.

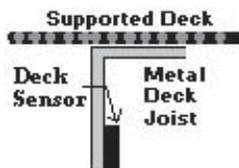


If you have a ladder that is not bolted to the lower deck, but instead, is supported by angle irons, then the sensors should be epoxied to the bottom of the supporting angle iron.

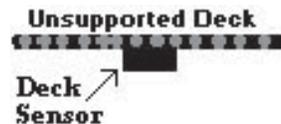


If your ladder is bolted to the lower deck, you should epoxy the sensors beneath the point the ladder meets the deck.

The size of the protected area will vary depending on the construction of the boat and the placement of the Pulsor. If you are mounting the sensor on a support joist, the area of detection will be larger than if the sensor is mounted directly to the deck plate.

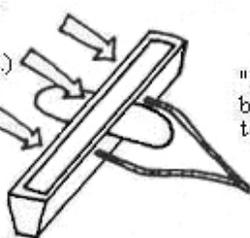


When mounted to a support joist, the average oval of detection is roughly an oval that is 4 to 5 feet along the joist and 2 to 3 feet across the joist.



When mounted directly to the deck, the area of detection will be closer to a circle with a 2-3 foot diameter. This provides ideal spot protection (cabin entry, ladders, gunwales, etc.)

Thoroughly mix epoxy (Min. 15 Sec.) and apply to entire fiberglass substrate.



"Fillet" of epoxy bonds Pulsor to joist

BEAM

Mixing stick

Pulsor

Use mixing stick to push squeezed epoxy back into joint.

Gel filled Connectors

(Home run to control)

Use tape to hold Pulsor in place while the epoxy sets

***** DO NOT CLAMP SENSOR TOO TIGHTLY. EPOXY WILL FILL THE GAP. *****



System Wiring

Terminal 10 (Output [-] Deck Sensor) (Chimeplate)	Terminal 11 (System Positive)
Terminal 9 (Deck Sensor)	Terminal 12 (System Ground)
Terminal 8 (Deck Sensor)	Terminal 13 (System Status L.E.D [-] Output)
Terminal 7 (Deck Sensor)	Terminal 14 (Output [-] Contacts)
Terminal 6 (Output [-] Bilge)	Terminal 15 (15 Sec. Delay Signal - A)
Terminal 5 (Input [-] Bilge)	Terminal 16 (15 Sec. Delay Signal - B)
Terminal 4 (Horn/Siren-Common)	Terminal 17 (A/DA Status Signal - A)
Terminal 3 (Horn/Siren-Normally Open))	Terminal 18 (A/DA Status Signal - B)
Terminal 2 (Lights-Common)	Terminal 19 (Manual Arm/Disarm [-] Input)
Terminal 1 (Lights-Normally Open)	Terminal 20 (N.O Contacts [-] Input)

Lighting Circuit - This is a 8 amp @ 12 VDC Form “C” relay for 12 Volt lighting. The voltage applied to COMMON will pass to N.O. (Normally Open) when the circuit is active.

Terminal 1 (Lights-N.O / Normally Open)

Terminal 2 (Lights-Common)

CONNECTION: Terminal 1 (N.O.) will be connected to the Positive side of the lights.

Terminal 2 (Common) is connected to constant +12V.

The negative for the lights will be connected to constant Ground (0V).

Siren Circuit - This is a 8 amp @ 12 VDC Form “C” relay for the horn/siren. The voltage applied to COMMON will pass to N.O. (Normally Open) when the circuit is active.

Terminal 3 (Siren-N.O / Normally Open)

Terminal 4 (Siren-Common)

CONNECTION: Terminal 3 (N.O.) will be connected to the Positive side of the horn/siren.

Terminal 4 (Common) is connected to constant +12V.

The negative for the siren will be connected directly to Ground (0V).

Terminal 5 (Input [-] Bilge)

CONNECTION: Ground input from Bilge Sensor.

*Optional: A Normally Open Switch can be installed between the the high water sensor and this terminal. The normal position of the switch is “ON”. The bilge input is run through the switch. This would be provided so responding personnel can turn the switch off to deactivate the bilge output until the water level is normalized. The switch must then be returned to the “ON” position.

Terminal 6 (Output [-] Bilge)

CONNECTION: Ground (0V@50mA) output to trigger an auxiliary device for the duration of a high water condition.

Deck Sensor Circuit

Terminals 7 - 9

CONNECTION: Wire Pulsors as shown in “Wiring the Pulsor”.

Terminal 10 (Output [-] Deck Sensor) (Chimeplate)

This terminal will sink 50mA to ground for as long as the deck sensors are in alarm condition. It can be used to light an led or trigger a sounder.

CONNECTION: Blue lead of chime plate.

The black lead of the chimeplate will go to constant ground.

The red lead of the chimeplate will go to constant +12 VDC.

Terminal 11 (System Positive)

CONNECTION: **Should be fused.** System Positive. Positive of 12 VDC power supply.

Terminal 12 (System Ground)

CONNECTION: System Ground. Negative (Ground) of 12 VDC power supply.

Terminal 13 (System Status L.E.D [-])

CONNECTION: Negative (white) lead of the Red L.E.D.

The Positive (red) lead of the Red L.E.D lead is connected to constant +12VDC.

Terminal 14 (Output [-] Contacts)

This terminal will sink 50mA to ground for as long as hatch contacts are in alarm condition. It can be used to light an led. If used, it is simply a visual aid for zone fault.

CONNECTION: Negative (white) lead of the Yellow L.E.D.

The Positive (red) lead of the Yellow L.E.D is connected to constant +12VDC.

Terminal 15 (15 Sec. Delay Signal - In)

CONNECTION: [For monitoring] * Wiring is determined by device to be triggered. *Call for assistance.

Terminal 16 (15 Sec. Delay Signal - Out)

CONNECTION: [For monitoring] * Wiring is determined by device to be triggered. *Call for assistance.

Terminal 17 (A/DA Status Signal - In)

CONNECTION: [For monitoring] * Wiring is determined by device to be triggered. *Call for assistance.

Terminal 18 (A/DA Status Signal - Out)

CONNECTION: [For monitoring] * Wiring is determined by device to be triggered. *Call for assistance.

Terminal 19 (Manual Arm/Disarm [-] Input)

CONNECTION: One lead of a Normally Open Momentary button or Key switch is connected to this terminal. The other lead from the button or switch is connected to constant Ground.

Terminals 20 (N.O Contacts [-] Input)

CONNECTION: One lead of any used contact. The other lead will be put to constant Ground (0V).

***Use Normally Open contacts only.** Multiple devices may be wired in parallel.

Do not apply +12VDC to this circuit as it may result in damage to the system.