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THE
MarineGuard
Series 5

Each year, an ever growing number of boat owners are trusting MarineGuard's MG series Boat Alarm to protect their vessels. The new MG5 is more versatile than its predecessor, yet still remains easy to use and simple to install. When installed correctly, the MG5 will provide satifaction and a false-alarm free experience that will become part of your life. Each system is hand assembles in the USA and passes multiple phases of testing before it leaves the factory.

The system is encapsulated for protection from the harsh conditions of a marine environment. The main control box is 9 ½" Tall, 5 ½" Wide, and 3 ¼" Deep. Operating directly from one of the boats batteries, a low current draw allows the system to operation during storage or other periods of vacancy. The MG5 has three security zones. Zone 1 is for deck sensors. Zones 2 and 3 are for auxilliary devices (contacts, etc). The system can accept all *Normally Open* security devices. These devices will immediately trigger an armed system. Alarm condition will last for two minutes. During this time the siren will sound and 12-volt lights will flash. After two minutes the system will reset and wait for another violation. Arming and disarming is accomplished using wireless key chain transmitters. The system also includes a circuit for bilge sensors (high water detectors). This is a 24-hour circuit and will remain operational whether the system is armed or disarmed. Separate relay outputs are provided for 12-volt light activation and siren activation. Systems provide annunciation of guests via an electronic chime.

The MG5 has been specifically designed to incorporate 24 hour monitoring by MarineGuard Network. It has outputs to monitor alarm conditions and system status (armed/disarmed). If utilizing MarineGuard Network Monitoring, the alarm signal 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
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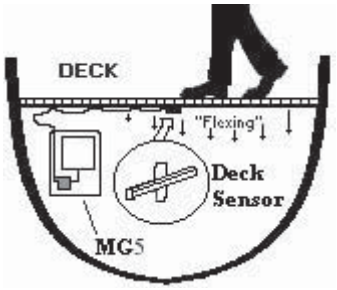
Standard Components

(1) Control Panel
(1) 4-channel RF Receiver
(1) Red Status L.E.D
(1) Yellow Status L.E.D
(2) Key chain Transmitters
(1) Siren

The Pulsor

The Pulsor motion detector is the basis of the system. Pulsors are perfect for open cockpits because they will not detect birds and they are not affected by sunlight. In addition, they are unaffected by wind, noise, the rocking of the boat, or normal boat vibration. Each Pulsor is epoxied to the bottom of the support joist or deck plate and hard-wired (home-run) back to the control panel. The sensing element is a high-tech crystal that stretches and compresses when the deck bends. The weight of an intruder causes a unique flexing along the deck. This is interpreted by the processor, which triggers the alarm. Fiberglass decks will use a sensitivity setting just above minimum. Pulsors have been time tested for nearly 30 years. They are installed on all kinds of boats including megayachts with decks made of inches of *teak and steel*. Some of these vessels have utilized up to 200 sensors per boat. The *only* limitation to using the Pulsor is the need for access to the area you wish to protect. The sensitivity is fully adjustable from the control box.



The Basics of Installation

Plan the system before beginning installation:

1. Determine location of Pulsors
2. Determine location of siren
3. Determine if you will be using 12 VDC Lighting
4. Determine if you will be using the contacts for doors or hatches.
5. Determine if you will be using the electronic chime for visitor annunciation
6. Determine how wiring is to be accomplished. Make sure you know the correct wiring requirements for the boat. Use at least 22 gauge for the Pulsors and 18 AWM for power connections.

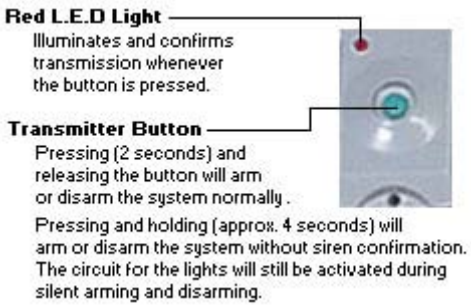
Recommended Sequence of Installation

1. Mount Pulsors
2. Mount control panel
3. Run wire
4. Attach wires to control panel
5. Power system
6. Walk-Test

Daily Operation

Arming and Disarming

The primary means of arming and disarming the MG5 are the two key chain transmitters. Momentarily pressing and releasing the button will arm or disarm the system. The siren will confirm arming with a single short blast from the siren. Disarming with will be confirmed by two blasts. If the system was activated and reset, disarming will be confirmed by three blasts. In addition to siren confirmation, the 12-volt lights will flash to confirm arming and disarming.
***Note:** Every time the system is disarmed, the circuit for the lights will remain activate for two minutes. After two minutes the lights will turn off. This feature allows for visibility when returning to the boat after dark.*



Any zone in alarm condition will prevent the system from arming.

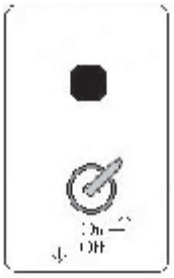
Silent arming and disarming

The system can be armed and disarmed without siren confirmation. Pressing and holding the transmitter button for approximately three seconds will arm or disarm the system without siren confirmation. The circuit for the lights will still activate as normal.

It is also recommended that a manual override switch be installed in a suitable location. A terminal is allocated for this in the wiring block. The switch should be a marine grade Normally Open momentary. In the event the transmitter ceases to function, the switch allows for manual disarming of the system.

The MarineGuard is supplied with a pleasant sounding electronic chime. The chime will activate every time a pulsor zone is violated*. This feature allows for a person to be in the cabin or working below deck, yet still be alerted that someone has boarded. The switch will only disengage the chime feature. It has no effect on system operation. The plate is mounted so the chime is above the switch.

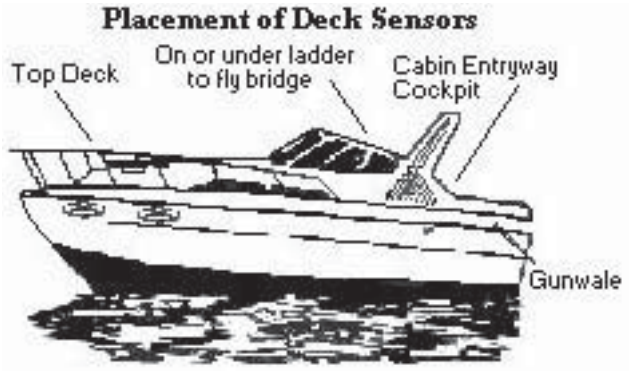
*Except during the two-minute lights cycle after disarming.



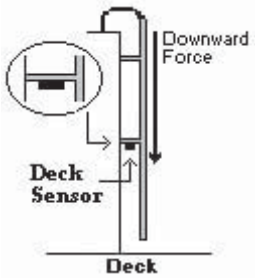
While the system is armed, any violation of a Pulsor zone or contact will cause the system to instantly alarm. During alarm condition the siren will sound and the lights will flash. After two minutes, the system will return to an armed condition and await another violation to repeat the cycle.

Placing the Pulsors

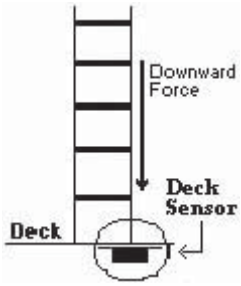
Each Pulsor can be compared to a miniature land mine. They should then be placed in areas where traffic is most likely to pass. When an intruder steps into the sensing area the alarm will trigger. Gunwales, cockpits, and cabin entryways are effective and popular traps.



Another popular place to mounts sensors is either on or under the ladder leading to a fly bridge.

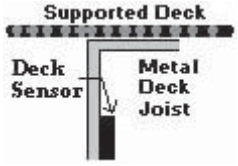


If you have a ladder that is not bolted to the lower deck, but instead, is supported by angle irons, then the sensors should be epoxied to the bottom of the supporting angle iron.

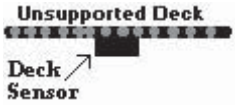


If your ladder is bolted to the lower deck, you should epoxy the sensors beneath the point the ladder meets the deck.

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*



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.)

L.E.D Status Lights

The L.E.D Status Lights are a visual indicator of what state the security system is in at any given time. They are normally place in a high visibility area. Fit L.E.D's to a 5/16" mounting hole.

Red (Arm / Disarm Status)

Off = System is Disarmed *OR* There is no power to the system.
On = System is Armed.

Yellow (Pulsor Circuit / Zone 1, Zone 2, Zone 3)

Off = Circuit is normal.
On = Circuit is in alarm condition.

Each zone has a corresponding Ground Output (0V@50ma). Typically these outputs are used to light l.e.d's. The L.E.D will follow alarm condition for that zone while the system is disarmed. If alarm condition occurs while the system is armed but is disarmed before the cycle is complete, the relevant l.e.d will remain lit for 2 minutes after disarming. If the system completes the alarm cycle and resets without disarming, the l.e.d will remain lit for 5 minutes after disarming.

Installing the Pulsor

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

Note: Avoid installing Pulsors too close to deck cleats and tuna towers.

- ✓ 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.

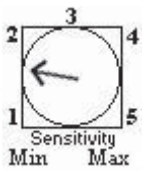
- ✓ Use one package of epoxy per sensor. Place a generous layer of epoxy onto the substrate of the sensor and touch the sensor into place. Hold the sensor in place with 3-inch tape while the epoxy sets. (*Do not clamp the sensor too tightly. You do not want to squeeze out all the epoxy*). The tape can 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 walk test and set the sensitivity. (*This is why we recommend that the Pulsors be mounted before starting the rest of the installation. You can still walk over protected areas while the epoxy cures.)*

Walk Testing

Walk testing must be performed at each Pulsor location. Its purpose is to demonstrate that each Pulsor has enough sensitivity to protect its targeted area. Walk over the protected area to make sure the system responds. Make small adjustments if necessary. Always use the minimum setting required to protect the target area. ***Note:** When a Pulsor is activated, the yellow status led will light and/or the chime will sound.*

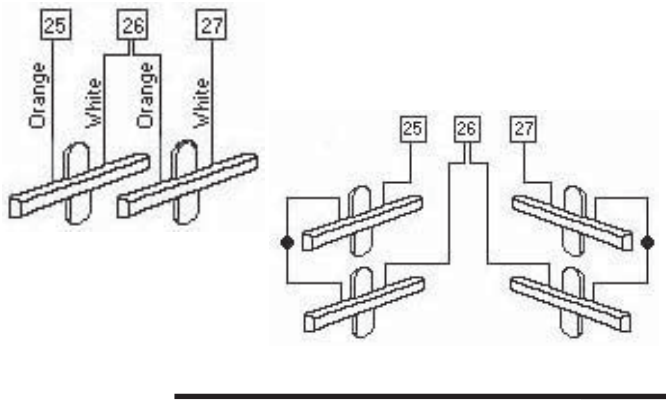
MG58 Only: The white wheel in the potting material is the sensitivity adjustment for the Pulsors on pulsor zone 2. It is factory set between 1 and 2. Most vessels will use a setting very similar. Sensitivity increases as you turn the wheel clockwise. There is a red L.E.D for Pulsor zone 2 in the main control unit. The L.E.D will be lit if the zone is alarm condition. If the zone is wired correctly, the light(s) should extinguish within 1 minute of power up.
***Note**: *Never use a higher sensitivity setting than is needed.*



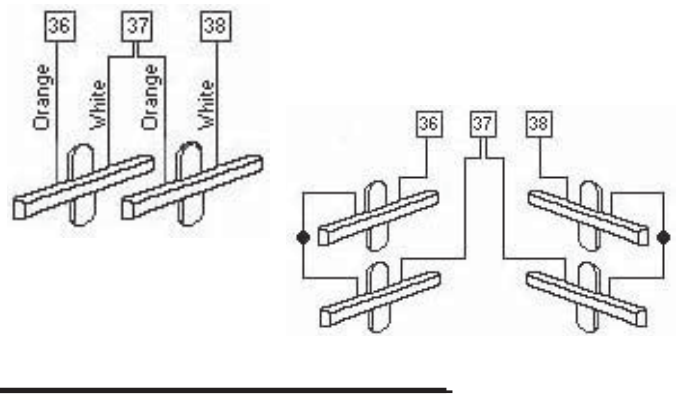
Pulsor Configuration

NOTE: When you receive your system there may be resistors wired to the Pulsor circuit(s). *These resistors were necessary for final testing* ***and should be removed before wiring the Pulsors*****.**

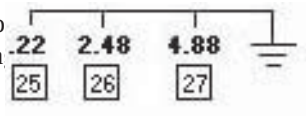
Pulsor circuit for the MG54 is Terms. 25-27

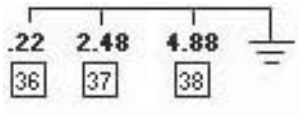


Pulsor circuits for the MG58 are Terms 25-27 and



The readings in the Pulsor configuration are in DC volts and are po tive reading in relation to Negative of the power supply. (The volta readings at Terms. 25 & 27 and 36 & 38 may be reversed.)





Note: If wired correctly, the voltage at the center terminal(s) [Terms. 26 & 37] will be close to 2.48 VDC.

- ✓ Measure each Pulsor with a digital ohmmeter before installation. Each should read 1000 Ohms ± 30%.
- ✓ Measure and record each Pulsor wired to control box after minimum 4 hours cure.

Keep a record in the control box. These values will not change appreciably over time.

The purpose of the bilge plate is to provide an audible alarm when a bilge sensor detects high water. **This switch should always be left on.** If the bilge sensor detects water, momentarily turning the switch off will reset the sensor.

*Note: The normal position for the switch is the "ON" position.
However, at system power-up, if the switch is on the bilge circuit will go into alarm condition. There are two ways to initialize this circuit.

1. Place switch in "OFF" position during system power-up, then return switch to "ON" position.
2. Toggle switch by turning it "OFF" and "ON".

Wiring Overview