

# WakeUp Marine Alarm

## WMA-1

### Operation and Installation Notes

#### **General:**

The WMA-1 monitors the Raymarine SeaTalk network to identify alarm signals transmitted by Raymarine ST40, ST50 and ST60 Depth and Wind instruments and Radar. When any of the supported alarm codes is recognised, the WMA-1 closes a relay which allows an external, more powerful, alarm to be sounded so as to overcome a noisy environment or to wake sleeping crew.



#### **Background:**

The Raymarine ST series instruments and Radar systems have internal alarms but there is no provision to attach external alarms. Since the instruments are usually installed in the cockpit or wheelhouse of a boat their alarms often do not carry far enough for crew inside the vessel or asleep, so there is a real and demonstrable risk that a dragging anchor may not be noticed until the vessel is in danger of going aground or into deeper traffic areas. When single-handing skippers often have to snatch sleep whenever they can and need a loud warning if depth, wind speed or their radar alarms indicate dangerous conditions. There is clearly a need for a louder alarm which can be installed nearer to those who need to be aware of the dangers. The WMA-1 fills this need in a simple and economic way.

### **How Does it Work?**

The WMA-1 has a microprocessor which monitors the SeaTalk bus to “listen” for alarm data sequences. When an alarm is detected the WMA-1 closes a relay to operate an external alarm. As the relay contacts are isolated from the SeaTalk bus and the WMA-1 operational circuits, one or more powerful alarms may be wired anywhere on the vessel to ensure that attention is given to the situation. The alarms can be chosen from the wide range which is readily available for commercial/home security systems and which are proven to be very effective.

The ST Depth instruments have an internal alarm which can be set by the user to sound for:

- a) **Shallow** - When the depth measured is lower than the user set alarm depth
- b) **Deep** – When the user set threshold value is crossed, either deeper or shallower.
- c) **Shallow Anchor** – When the depth measured is lower than the user set alarm depth
- d) **Deep Anchor** – When the depth is deeper than the user set alarm depth.

Any or all of the alarms may be enabled in the STxx instrument at the same time but the intent is to allow different alarm depths for normal passage making compared to those when at anchor. Internal jumpers in the WMA-1 allow the unit to listen for “normal” alarms or “anchor” alarms or both.

The WMA-1 will operate for all 3 depth measurement units supported by the STxx instruments, Metres, Feet and Fathoms.

The ST Wind instruments have an internal alarm which can be set by the user to sound for:

- a) **High or Low** – Apparent wind speed
- b) **High or Low** – True wind speed
- c) **Wind Angle Change** – Apparent wind

The WMA-1 will respond to a **High Wind Speed** alarm for either measurement unit used on the ST series, knots or m/s. The Low Wind Speed and Wind Angle alarms are not supported.

Raymarine Radar systems have provision for 2 Guard Bands to be set. If the radar senses an object within either of the bands when they are enabled, a local alarm is sounded and an alarm message is sent on SeaTalk. The WMA-1 responds to **Guard Band 1 and 2** alarms on SL, RL, C and E series radar systems.

### **Installation:**

Input - The WMA-1 requires a 12V supply and SeaTalk data-in connection through 3 screw terminals. It has low current drain (approx. 15mA in monitor state and 65mA in alarm state) so it is possible to connect it to the 3 wires of the SeaTalk bus from which it will take its operating power. Alternatively separate +/- 12V can be supplied to the WMA-1 and the SeaTalk Data signal connected from the SeaTalk bus.

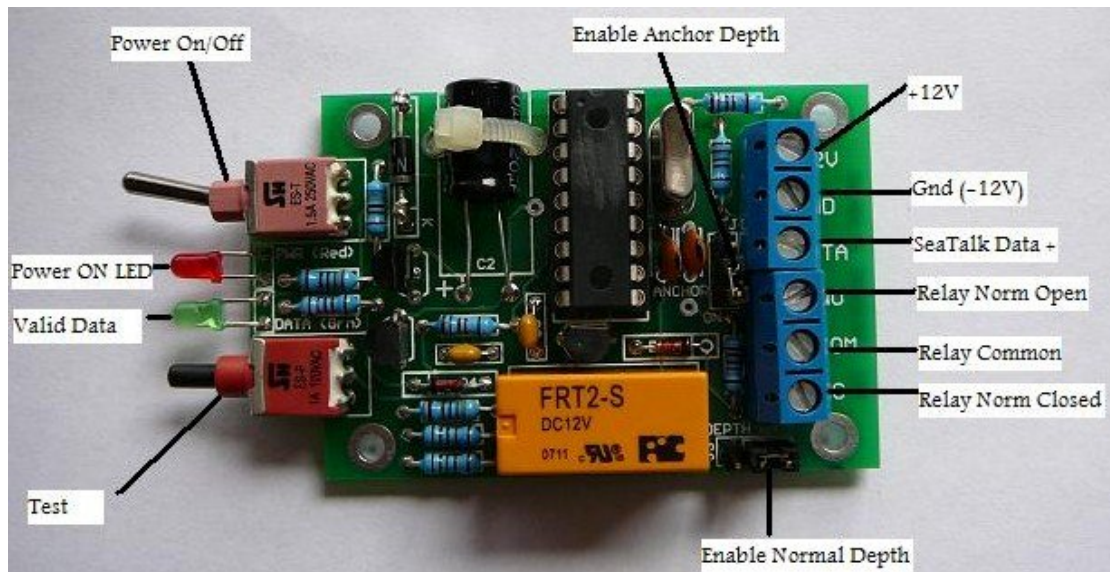


Fig 1

**Output** – There are three screw terminals provided for the relay contacts, Common (C), Normally Open (NO) and Normally Closed (NC). +12V from the vessel’s domestic power is connected to the C terminal. One or more alarms/sirens are connected between the NO terminal and Gnd (-12V), (fig. 1). This allows alarm devices drawing up to 1Amp to be operated. +12V for the alarms should be fed separately from the ship’s power, not taken from the SeaTalk +12V supply.

**Alarm Selection** – Two internal jumpers are provided to select which depth alarm codes the WMA-1 will respond to:

- 1) “Normal” Shallow and Depth alarms
- 2) “Anchor” Shallow and Depth alarms

Jumper either or both pairs of pins to select the alarms required (fig.1).

The Wind and Radar Guard alarms are always selected and will operate if enabled at their source instrument.

**Measurement Units** – There are no adjustments required for any of the 3 depth measurement units and 2 wind measurement units in use by the STxx, the WMA-1 will automatically recognise the appropriate alarm codes.

**Location** – The WMA-1 is intended for interior or fully sheltered installation. As it connects to the SeaTalk bus it does not need to be close to the ST instruments. Find a dry location with visible access to the left side of the module where the operational switches and lights are located. Allow space to run cables to the right hand side of the module. Velcro strips are ideal for non-destructive mounting of the module. Alternatively, 2 or more of the clamshell screw holes of the WMA-1 case can be drilled through to screw the unit to a convenient mounting point.

**External Alarms** – Various powerful external alarms can be used. Typical examples from the commercial/domestic security industry are:



Small Piezo alarm



Pulsing Piezo "screamer"



Siren

### Operation:

All operational controls and indicators are on the side of the module (fig. 2). They are:

- a) Power ON/OFF. Switch down towards the red LED to turn power on.
- b) Red LED - lit when power is on.
- c) Green LED (Heartbeat) – flashes twice on initial power on then flashes approximately once per second when valid depth data is being received by the WMA-1.
- d) Test – Press and hold this whilst turning power on to initiate a self test mode. This will exercise the processor and close the relay (and sound the alarm) for 2 seconds.

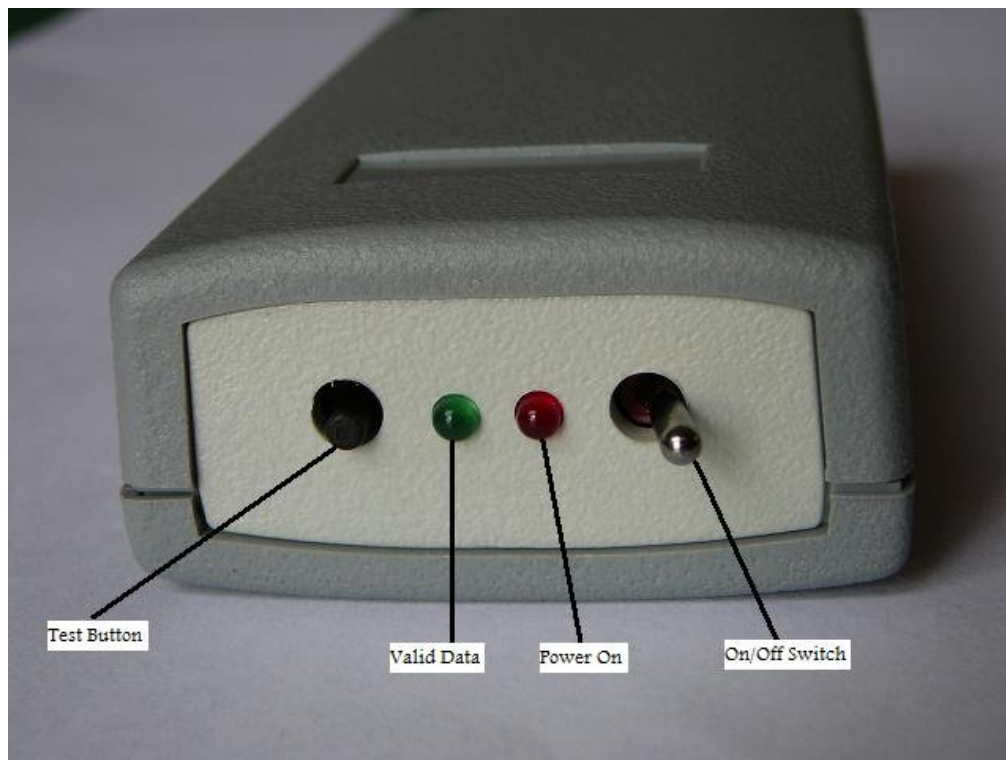


Fig 2

There are two steps to activate the alarm process:

- 1) Set the STxx instrument and Radar alarms as required and turn the appropriate alarm ON. See the STxx depth instrument and Radar operations manual for details.
- 2) Turn ON the WMA-1 module.

The WMA-1 may be left ON when on passage for additional warning if desired. In this mode of operation, both “Normal” and “Anchor” modes would be selected by the WMA-1 internal jumpers and the alarm thresholds in the STxx instruments set appropriately for each case. During passage-making, the STxx “Anchor” alarm would be set to OFF, leaving the “Normal” alarms set to ON. Conversely when at anchor, the STxx “Alarms” are set to ON whilst the “Normal” may be turned OFF or left ON if there is no conflict of alarm levels.

If the STxx or Radar alarms trigger, there will be a delay of approximately 2 seconds before the WMA-1 triggers the external alarm. This is to avoid individual spurious measurement errors triggering the external alarm. When the STxx Depth local alarms cease, the WMA-1 continues to sound for approximately 2 seconds to avoid a spurious measurement stopping the alarm whilst danger still persists. STxx Wind and Radar alarms turn off when the local alarm stops.

Pressing any key on the STxx instruments or Radar will temporarily disable the alarm for a period of approximately 10 sec. If after this delay, the situation is still outside the parameters set for any alarm, the alarm will continue until temporarily disabled again or turned OFF using the ST instrument Reset button or disabling the Radar Guard Band mode. At any time the WMA-1 may be switched off with its power switch.

## **WARNING**

**This device is designed to provide assistance to boat owners/operators whilst using their boat but should not replace good seamanship or close personal observation of the anchoring or cruising environment and weather conditions.**

## **Technical Data**

- Power input: 11-15VDC
- Current draw, no alarm: 20mA
- Current draw, alarm: 70mA (excludes alarm sounder unit)
- Maximum switched current: 2A, 12VDC

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## **Tech-X**

Sydney

Australia

ABN#32 002 172 232

Email: [techx@tpg.com.au](mailto:techx@tpg.com.au)

Web: [www.tech-x.com.au](http://www.tech-x.com.au)

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