easyWATCHBOX

Manual
NMEA-Alerting Unit: A087
Revision 1.5

EXCELLENCE IN RADIO TECHNOLOGIES

General warnings

All marine Automatic Identification System (AIS) units utilize a satellite based system such as the global positioning satellite (GPS) network to determine position. The accuracy of these networks is variable and is affected by factors such as the antenna positioning, how many satellites are used to determine a position and how long satellite information has been received for. Therefore it is desirable wherever possible to verify both your vessels AIS derived position data and other vessels AIS derived position data with visual or radar based observations.

Warnings and precautions

It is the sole responsibility of the owner/operator of the ship to command the vessel safely and to be in full control of all operating conditions during the entire travel time. By mistaken conduct of the operator of a ship equipped with a easyWATCHBOX if the operator does pay undivided attention to operation and surrounding condition damage or personal injury may be caused in the event of an accident.

Caution:

It is the duty of the operator to handle the easyWATCHBOX with care. The device cannot release you from your obligations of due diligence!

Thus it is important at all times to keep a proper lookout.

Pos	Date	New version	Author	Description of change
1	Jan 13	1.0	Zimmer-mann	Base information
2	Jan 13	1.1	Zimmer-mann	Corrections
3	July 13	1.2	Zimmer-mann	Changes
4	Sep. 15	1.3	Schuster	
5	March 16	1.4	Schuster	Auto-Dialup 3.4.4
6	Sept 16	1.5	Vits	General

Table of Contents

1 Scope of delivery

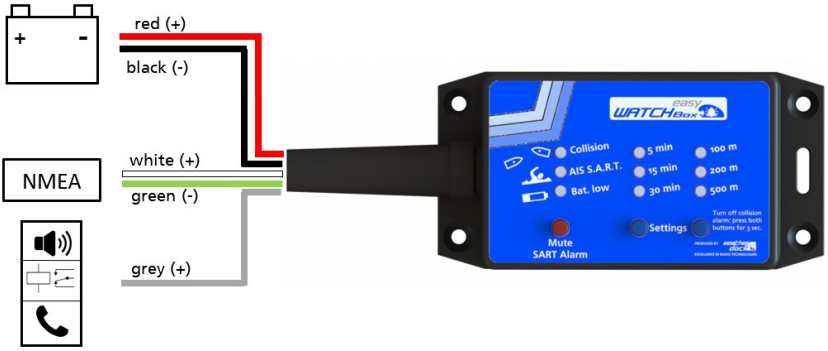
- easyWATCHBOX
- Manual
- Cable clamps

2 Mounting and Installation

2.1 Electrical installation

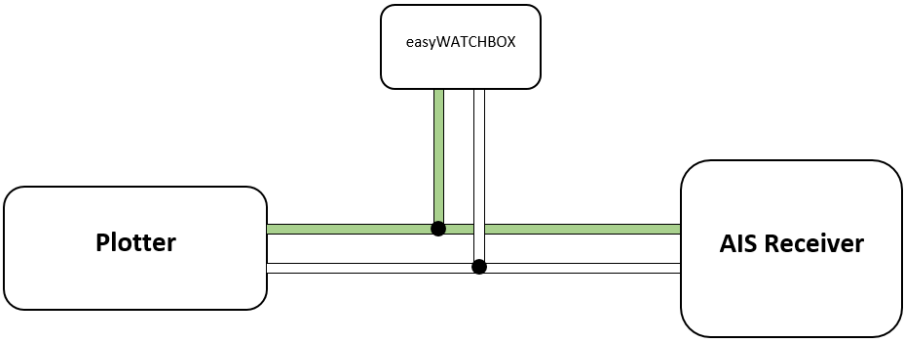
The easyWATCHBOX is equipped with 5 colored wires.

- Power (+) (12-24VDC) - red
- Power (-) - black
- NMEA (+) - white
- NMEA (-) - green
- Special Function (+) - grey



The AIS output must be set to 38400 baud data rate.

If you have a chart plotter connected to the AIS, you just connect the easyWATCHBOX in parallel. (Please see following figure)



Electrical self-check:

The easyWATCHBOX has got an internal self-check, which gives you information, about the status of power, GPS and AIS data.

- The Bat.-low LED should always light up green.
  If it lights up red, the supply voltage is too low.
- When no AIS data is available (AIS receiving unit is turned off, or maybe a broken wire), or CPA-alert is deactivated, the LEDs for time and distance are turned off at all.
- When GPS and AIS data are going into the easyWATCHBOX, the actual setting LEDs (one for time and one for distance) show green light.
- The blinking of LEDs for time and distance indicates the standby mode of the easyWATCHBOX (GPS data is available, AIS data not). When AIS signals are being received, the LEDs are lighting up. When AIS signals are missing or lost for at least 30 sec (so only GPS data are available), the easyWATCHBOX changes over to standby mode again and the LEDs start blinking.

The easyWATCHBOX needs GPS-NMEA data and AIS-NMEA data. Only when both data are available, the watch box can calculate the distance to other ships and possible collision scenarios.

2.2 Mechanical installation

The easyWATCHBOX is not sealed and therefore intended only for use inside of ship. It can be mounted with 4 screws.

Please ensure that there is a gap between the back of the device and the wall or floor, to not decrease the volume of the integrated buzzer.

3 Using the easyWATCHBOX

The intended purpose easyWATCHBOX is an alerting device, which analyses the NMEA data output of an AIS receiver or AIS transponder.

On the basis of these data it analyses alarm situations like AIS-SART (Search and Rescue Transmitter), or it calculates collision scenarios. Whenever an alarm situation is detected, the LEDs show, which kind of alarm has occurred and the internal buzzer gives a loud signal.

With the buttons you can either turn on and off the acoustic alarms or you can set-up the collision alarm parameters (alarm distance and time).

ATTENTION:
The collision alarm is only available, when the AIS has got also GPS data on the NMEA output.

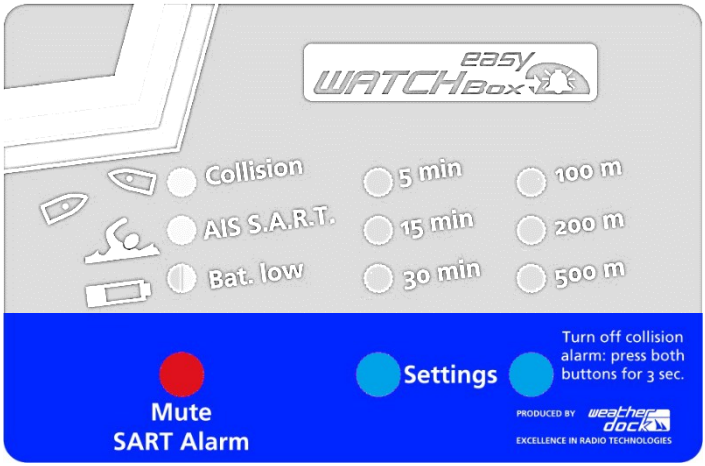
The AIS-SART alarm works almost with all AIS systems in the market.

Moreover the easyWATCHBOX features a deep discharge protection, an external horn drive and a trigger function for an auto dial-up device. (See chapter 3.4)

3.1 LED Indication

- Collision:
  Lights up, in case of danger of collision with another vessel or AIS-target.
- AIS SART:
  Lights up, when an AIS-SART signal was received.
- Bat. low:
  Changes from green to red, when the battery voltage falls below a dangerous limit
- Time LEDs (5, 15 and 30 min):
  Indicating the time limit, that you have selected for Collision warning (CPA)
- Distance LEDs (100, 200, 500 m):
  Indicating the radius limit that you have selected for Collision warning (CPA).

3.2 Buttons



- <u>Mute SART Alarm</u>:
  By pressing this button, the AIS-SART buzzer alarm is turned off. To turn it on again, please press this button for more than 3 seconds; you hear as confirmation a short double tone.

- <u>Settings</u>:
  With the both "*Settings*" buttons the Collision parameters can be changed.

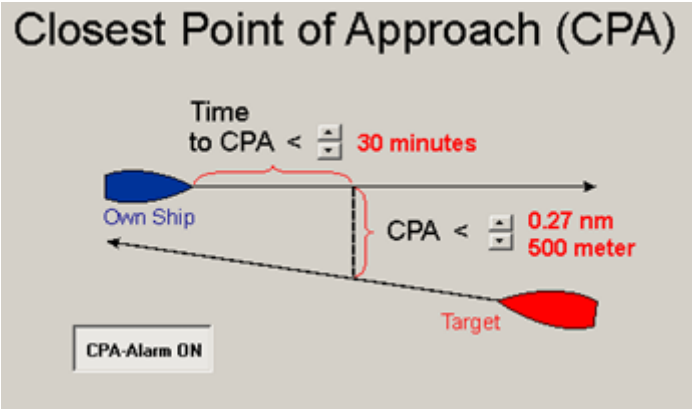
  By pressing both "*Settings*" buttons together for more than 3 sec, the collision alert is turned off. The Time and Distance LEDs will go out.
  To reactive CPA Alert, simply press one of the both "*Settings*" buttons.

ATTENTION: After 30 minutes all disabled alarms are turned on automatically for your safety!

3.3 CPA Function

A "Collision" means more precise in technical terms: CPA "Closest Point of Approach". The easyWATCHBOX devices have a built-in feature, which calculates the CPA with every received AIS target.

You can now set a safety radius (around your ship). If a target ship enters your safety radius (in this example 500 m) within the stated time limit (here 30 minutes) the CPA alarm occurs.
You may change the radius and the time by the "*Settings*" buttons.



Possible safety radius: 100 m, 200 m and 500 m.
Possible time limits: 5 min, 15 min and 30 min.
Some recommendations:
If you are sailing in areas with very few vessels around, you should increase the radius and time.
A radius of 100 m and a time of 5 minutes is suitable in high traffic areas. Here you get a lot of collision alarms, so you can reduce the alarm to those, which are indeed critical.

CAUTION:
When the easyWATCHBOX gives a collision alarm, double check the situation on the chart plotter for identifying the dangerous vessel.
Only vessels, which do have a properly working AIS aboard, are able to trigger the CPA alert in the easyWATCHBOX!!

However a good seamanship and keeping a lookout is always essential!

3.4 Additional Features

The easyWATCHBOX has three additional features that can be controlled via the grey wire:

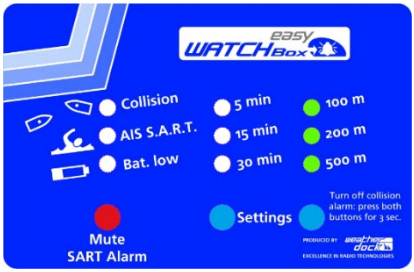
- Deep discharge protection
- External horn drive
- Trigger function for an auto dial-up device

3.4.1 Setting the modes

1. Turn off the easyWATCHBOX
2. Press the "*Mute SART Alarm*" button and keep it pressed
3. Turn on the easyWATCHBOX
4. Recognize the row of LEDs turning on
5. After the buzzer beep, release the "*Mute SART Alarm*" button

With every repetition of this procedure the three possible modes are stepped through. It will always toggle between the functions "Horn" "Switch" and "Auto Dial-up".

When the **right** row of LED is lighting up, the "*Battery-Low*" function is active:



When the **middle** row of LED is lighting up, the *"external horn"* function is active:

When the left row of LED is lighting up, the *"Auto Dial-up"* function is active:

3.4.2 Battery low

To avoid your battery from draining, it is possible to connect an external switch, a relay or a battery load (e.g. a refrigerator), which will be turned off, when a "Battery low" alert occurs.

In normal operation the board voltage is transferred with grey cable and has a current capacity of 4A

The easyWATCHBOX recognizes if it is a 12VDV or 24VDC system.
In a 12VDC system the "Battery low" function switches at 10,3V.
In a 24VDC system the "Battery low" function switches at 20,6V.

3.4.3 External horn

The grey wire can be connected to an external horn.
This might be useful, if the internal buzzer cannot be heard for some reason.
When the internal buzzer turns on, this wire has got the supply voltage +12 V or +24 V (up to 4 A can be drained).

All type of alarms are duplicated from the internal buzzer.

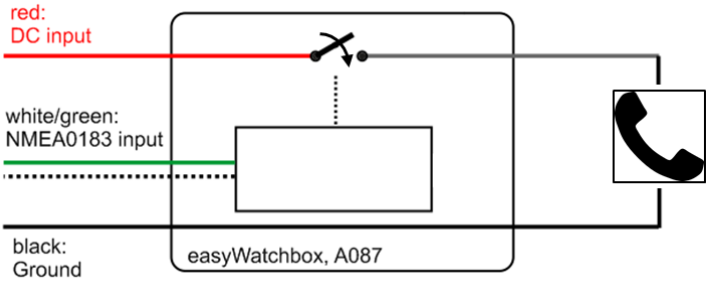
3.4.4 Auto Dial-up

Valid with Firmware >= 0.0.4

With the Auto Dial-up function you can trigger an Auto-Dial device to send a text message or do a phone call to pre-saved numbers.

With receiving an AIS SART/MOB the grey wire is set to + power supply voltage for four minutes.

If you press the "*Mute SART Alarm*" push button, the output is also muted.
This means that this button also prevents a new Dial-up for 30 minutes.
When you don´t mute the unit you´ll hear a SOS Morse sounding (. . . - - . . .) every time a SART/MOB telegram is received. After four minutes the Auto Dial-up output is being switched off.
When still receiving an AIS SART/MOB signal the next 4 minutes interval is triggered.
As long as this output is active, the time is not retriggered.



3.5 Troubleshooting

Problem	Cause	Solution
No LED is on	No Power supply or low voltage	Double check that the supply voltage (12V or 24V) is connected.
No green LED (for distance and time setting).	No valid GPS data are going into the easyWATCHBOX Or CPA-Alert is deactivated.	Check if cables are connected in right order. Check if AIS-Class B is receiving GPS Check if AIS-Class B has GPS data output enabled.
Green "*Settings*" LEDs are blinking	No AIS data are available	Check if AIS-Class B is receiving AIS targets. (In areas with plenty of ship traffic it's not unusual to receive no AIS targets.

4 Technical Data

Parameter	Value
Power	DC (12 V / 24 V)
	Average power consumption 6 mA @ 12V DC
Electrical Interfaces	NMEA0183, 38400 baud
	External switch: Output of supply voltage (12V or 24 V). Max current: 4A.

5 Contact and Support Information

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Contact your local dealer for WEATHERDOCK AIS support.

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6 License Agreement

By using the easyWATCHBOX you agree to be bound by the terms and conditions of the following warranty.

PLEASE READ THIS AGREEMENT CAREFULLY.

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7 Warranty

This Weatherdock product is warranted to be free from defects in materials or workmanship for 24 month from the date of purchase. Within this period, Weatherdock will at its sole option repair or replace any components that fail in normal use. Such repairs or replacement will be made at no charge to the customer for parts or labor, provided that the customer shall be responsible for any transportation cost. This warranty does not cover failures due to abuse, misuse, accident or unauthorized alteration or repairs.

The warranties and remedies contained herein are exclusive and in lieu of all other warranties express or implied or statutory, including any liability arising under any warranty of merchantability or fitness for a particular purpose, statutory or otherwise.

In no event shall Weatherdock be liable for any incidental, special, indirect or consequential damages, whether resulting from the use, misuse, or inability to use this product or from defects in the product.

Weatherdock retains the exclusive right to repair or replace the unit or software or offer a full refund of the purchase price at its sole discretion. Such remedy shall be your sole and exclusive remedy for any breach of warranty.

If you choose to use the easyWATCHBOX, it is the sole responsibility of the owner/operator of the easyWATCHBOX to secure the easyWATCHBOX so that it will not cause damage or personal injury in the event of an accident. It is the sole responsibility of the operator of the boat to operate the boat in a safe manner, maintain full surveillance of all boating conditions at all times, and never become distracted by the EasyWATCHBOX to the exclusion of safe operating practices.

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