

„easyDIVE-POS“ - Receiver
Manual

easyDIVE-POS
Diver-Locating & Alerting System
Product No.: A05x
Rev. 1.0

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PLEASE READ THIS FIRST!

Safety Precautions

The easyDIVE-POS receiver is designed for DC voltages, which are usually available on ships. Do not exceed the supply voltage, which is read in the technical data (see further in this manual).

LICENSING IMPORTANT:

In most countries the operation of a VHF unit using the marine band is included under the vessels marine VHF license provisions. Please contact the relevant authority in your country for more information. The easyDIVE-POS receiver unit includes a AIS-Class B'CS' transponder, which is fully approved. In accordance with a policy of continual development and product improvement the easyDIVE-POS hardware and software may be upgraded from time to time and future versions of the easyDIVE-POS may therefore not correspond exactly with this manual. When necessary upgrades to the product will be accompanied by updates or addenda to this manual. Please take time to read this manual carefully and to understand its contents fully so that you can install and operate your system correctly.

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ATTENTION:

PLEASE USE THE EASYDIVE-POS TRANSMITTER CAREFULLY AND NOT UNINTENDED.

ALSO THE EASYDIVE-POS WILL NOT OPERATE AUTOMATICALLY. IT MUST BE INITIALISED BY THE USER IN CASE OF EMERGENCY

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Revision of the operation manual

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Congratulations!

Thanks to purchase a unit from the Weatherdock AG. This testifies your high technical competence

1. SHORT DESCRIPTION



The easyDIVE-POS receiver is a portable externally powered VHF receiver with an electronic chart plotter.

The device is intended for the use in diving operations. The easyDIVE-POS receiver operates together with the easyDIVE-POS transmitter. The easyDIVE-POS transmitter can operate in two different modes:

- (A) The diver wants to inform the diving ship about his position. So the ship, he belongs to, can search and find the diver. This happens on a proprietary frequency in the marine VHF band, which is assigned by the authority of the country.

- (B) The diver needs help, because of an emergency or distress situation. In that case all ships around, which are equipped with an AIS receiver (AIS: Automatic Identification System), will be alerted, because in this case the easyDIVE-POS works as an AIS-SART (AIS Search and Rescue Transmitter). These ships will show the position of this diver in emergency on their electronic chart display. This communication happens at international AIS frequencies.

The easyDIVE-POS receiver will be set up in the diving vessel. It needs a VHF antenna (standard marine band) for receiving the easyDIVE-POS transmitter position reports. You can use the VHF antenna, which is already on the ship, or using an antenna splitter or just using an own antenna for it.

Then you need a GPS antenna connected to the easyDIVE-POS. This is used to have the actual position in the electronic chart display of the easyDIVE-POS.

Last but not least you need of course the supply voltage. You can use the supply voltage of the ship (12V or 24V). In almost

all cases you have a cigarette lighter socket available. A cable with a plug for that is included in the package.

Once you have connected all three cables the easyDIVE-POS turns on.

The electronic chart display has got a SD-Card slot. Here you can insert a C-MAP SD-Card with the navigational maps of your sea area.

When the easyDIVE-POS receiver has got a GPS position fix, you will see your ship position on the electronic map. This position is updated every second. So if your ship is moving, you can follow this movement on the chart display.

When a easyDIVE-POS VHF message (position report) was received, a symbol appears on the chart display at the lat and lon of the diver. So it is very easy to move the ship to the diver's position.

When you move the cursor over that symbol you get additional information about the diver (i.e. his Unit-ID, his speed (SOG), course (COG), his name, his ship's name and call sign.

2. CONNECTORS



At the BNC socket with the label "GPS Antenna" you connect the GPS antenna.

At the VHF socket with the label "VHF Antenna" you connect a standard marine band VHF antenna.

At the socket for the supply voltage you can connect either 12V or 24V DC. Please use the cable, which is included in the easyDIVE-POS package.

3. SWITCHES

There are two switches at the easyDIVE-POS. The switch "Target" sets the receiving frequencies of the unit. The easyDIVE-POS has got two independent receivers, which can be tuned to different frequencies within the marine VHF band.

In switch position "o" one of the receivers is tuned to the proprietary frequency for diver location and the other is tuned to AIS-2 for receiving AIS messages. In that case the chart display shows all AIS and diver targets.

In switch position "I" both receivers are tuned to the proprietary frequency. So the display shows the diver locations only. AIS targets are not shown. This could be useful, if too many AIS targets are around and it difficult to realize the diver targets.

When turning this switch from "o" to "I" the AIS targets do not disappear immediately. The chart plotter remains all targets for some minutes before they will be erased from the display. To accelerate this, you just can turn off an on the chart plotter. Then all targets will be erased at once.

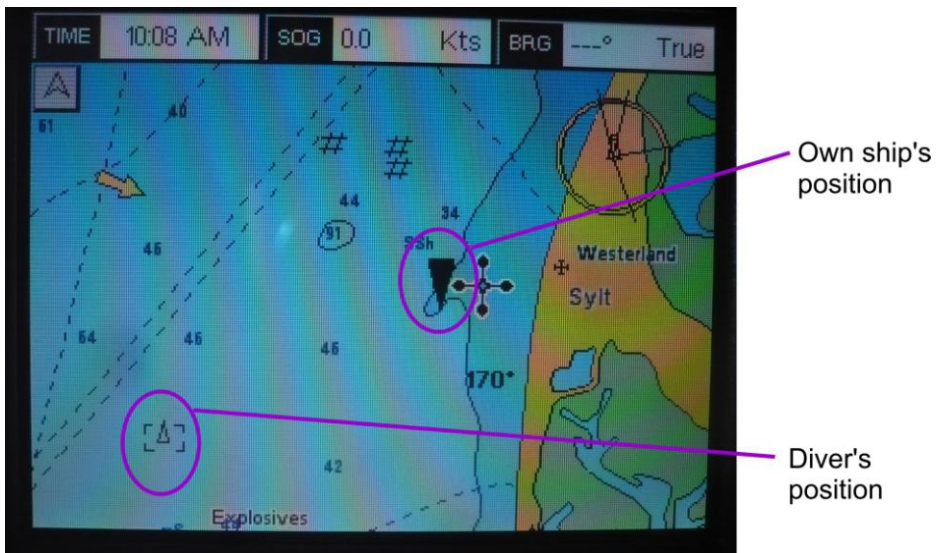
When a easyDIVE-POS diver position is received a acoustic tone occurs. You can turn that alarm tone off with the other switch. In case of an diver's emergency message (i.e. easyDIVE-POS is activated in "ALERT" mode) the alarm tone is like the Morse "SOS" (... --- ...). Due to the fact that these emergency messages are sent via the AIS frequencies, it is important to have the "Target" switch on position "o". Only in this position you get the alerting messages!

4. CHART DISPLAY

4.1. Electronic Chart Plotter

On the chart display you will see your ship's position once the GPS position is available.

When a easyDIVE-POS transmitter message was received, then you see also the symbol of this unit on the map.

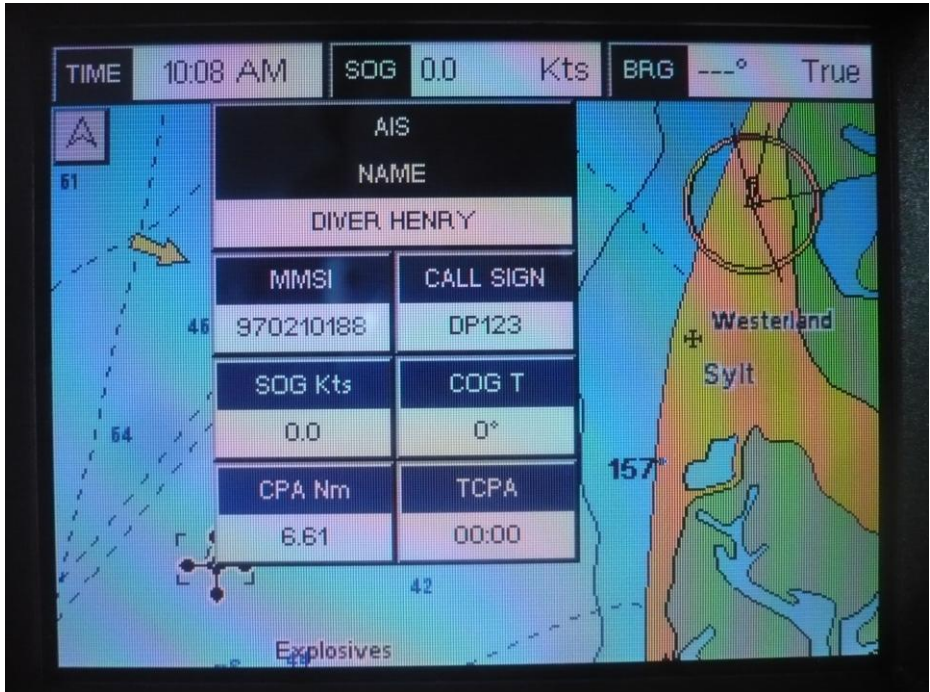


Now it is very easy to find the diver. The own ship's position will be updated every second. The position of the diver will be updated every minute, because the easyDIVE-POS transmitter get's a GPS position fix every minute and send eight VHF position reports in a burst.

Between every VHF message there is a pause of 2 sec. This ensures that in case of high waves there are always a couple

of messages sending out at the top of the wave. This increases the range of the VHF signal.

To get more information about the easyDIVE-POS transmitter unit, you just move the cursor over the symbol on the map. Then you get the following window.

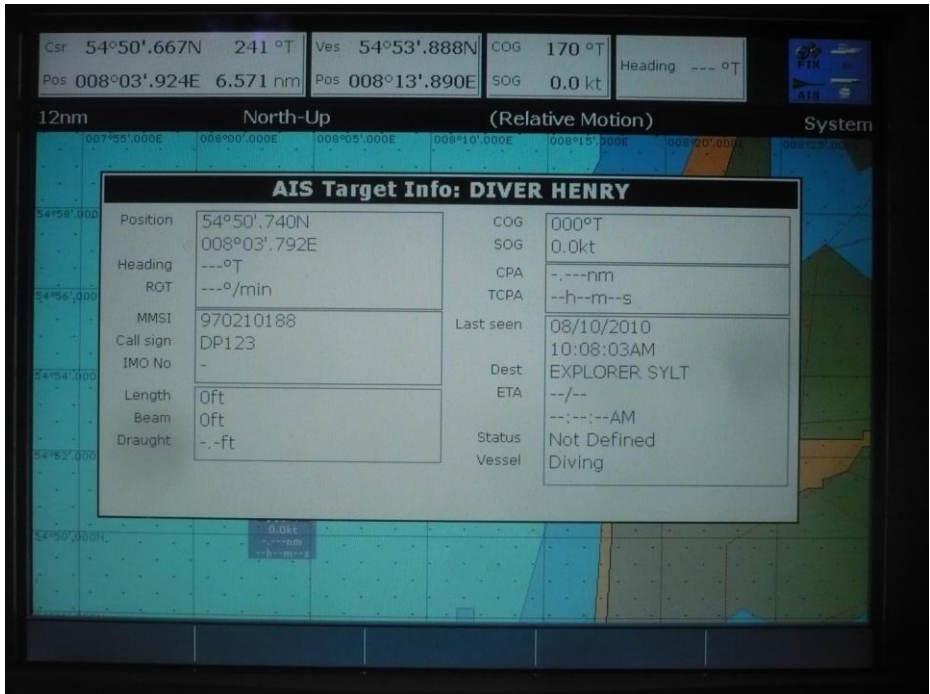


With that information you can identify the diver's name: Here it is "DIVER HENRY" and his Unit-ID : 970210188.

If the diver does not belong to your ship, you have also the call sign of his ship: Here it is "DP123".

You have the possibility to get into contact with his ship.

On other type chart plotters which are connected to easyDIVE-POS receiver the display of the target information could be different. In the following figure you see a different layout of the information:



For more details on the usage of the electronic chart display see the user manual of the chart plotter, which is included in the package.

4.2. Available Target Information

In the VHF messages of the easyDIVE-POS transmitter there are following information included:

4.2.1. Dynamic Information

Dynamic information is transmitted - as mentioned above - every minute. That means every minute the position, SOG and COG is updated on the chart display.

These are the transmitted dynamic information:

- **Unit-ID:** (9 digits)
- **Position :** Latitude & Longitude with a resolution of 1/10.000 of a minute,
- **Speed over ground (SOG) :** drift due to currents,
- **Course over ground (COG)**

4.2.2. Static information

Static information will never change, so they will be send less frequent than the dynamic information.

The static messages are send every 4 minutes.

These are the transmitted static information:

- **Unit-ID:** (9 digits)
- **Name:** (20 characters) programmable name of diver or diving group,
- **Ship's name:** (20 characters) name of ship, where the diver belongs to,
- **Ship's Call Sign:** (7 characters) call sign of the ship, where the diver belongs to.

5. ALARMS

Whenever an easyDIVE-POS signal is received an alarm tone occurs. This acoustic alarms can be turned off by the switch. There are two different alarm tones:

5.1. Standard search message

The easyDIVE-POS receiver produces five short beeps on every reception of an easyDIVE-POS signal. These signals are received on the proprietary VHF channel.

5.2. Alert message

When the easyDIVE-POS receiver gets an alert message from the easyDIVE-POS or any other AIS-SART, the acoustic alarm tone is like the Morse "SOS" (three times short beep, three times long beep and three times short beep). Then you know there is an emergency situation. These signals are received on the AIS VHF channel.

As the easyDIVE-POS receiver has got two independent VHF receivers, you can monitor both frequencies at the same time. That means, if the "Target" switch is in position "O", targets on the proprietary channel and on the AIS channel will be received.

ATTENTION: If you have the "Target" switch in position "I", then you get no alert messages!

6. INSTALLATION TIPS

6.1.GPS antenna

You can connect any active GPS antenna to the easyDIVE-POS receiver. We recommend using the "Weatherdock GPS antenna A029".



The GPS antenna must have a free view to sky. If there is a metal cover above this antenna, there might be the possibility of having no own position.

When turning on the easyDIVE-POS receiver, it takes around 60 sec until a GPS position fix is available. The chart plotter shows the position (lat and lon) on the screen.

6.2. VHF antenna

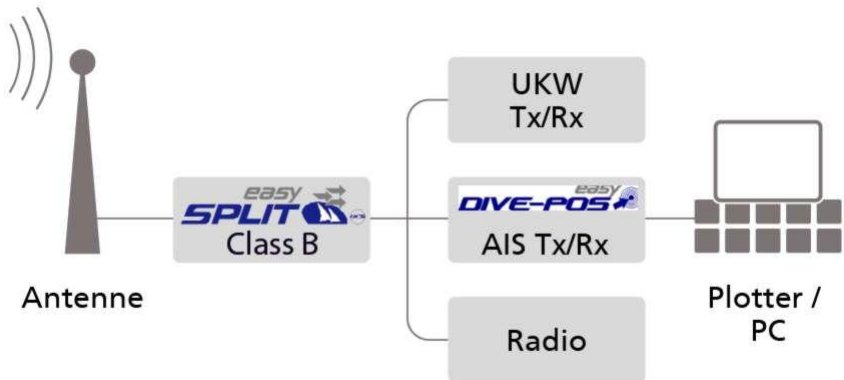
The VHF antenna should be mounted as high as possible. The higher the antenna the greater the range.

If you have a VHF antenna on board which is connected to an VHF radio, you can use an antenna splitter to use this antenna for both: easyDIVE-POS receiver and VHF radio.

There is an accessory available called "easySPLIT-OCB, Ao27" for this purpose:



It is very simple to install this device on the vessel. You do not need a separate antenna for the easyDIVE-POS then.

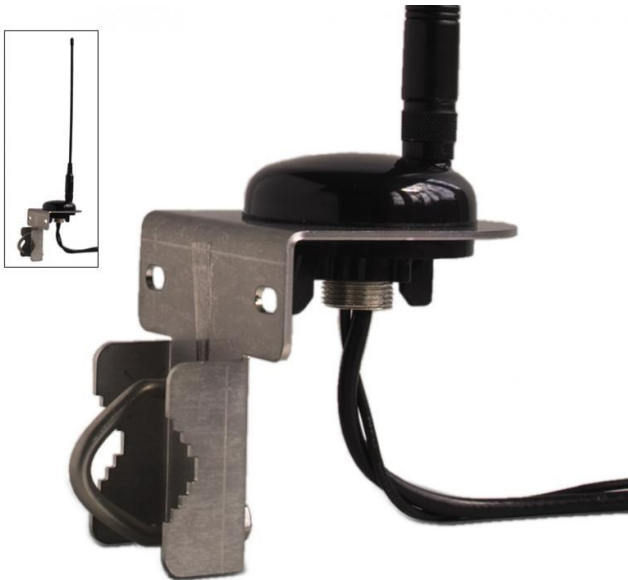


6.3. Optional: Combination Antenna

If you have no VHF antenna on your vessel, that could be used for the easyDIVE-POS receiver, you can use a simple combination antenna. This kind of antenna has the GPS antenna and the VHF antenna together integrated.

This antenna should be mounted as high as possible at a metal railing or any other metal fixture.

This antenna is available as an accessory: "Combination Antenna A028"



7. TECHNICAL DATA

Parameter	Value
Dimensions	t.b.d.
Weight	t.b.d.
Power	DC (9,6V up to 31,2V)
	Average power consumption 19.1W@12DVC
	Peak current rating 1,9A
GPS Receiver (AIS Internal)	IEC 61108-1 compliant
Electrical Interfaces	RS422 NMEA 4.8 kBaud input
	RS422 NMEA 38.4kBaud bi-directional
	USB
Connectors	VHF Antenna connector (UHF female bulkhead connector)
	GPS Antenna connector (BNC female bulkhead connector)
Cable – Data/	RS232 / RS422 / Data / Power (15-pin Connector) Typically, 1.5 meter DSUB
Power	2-pole plug connector
VHF receiver	2 independent Receives
AIS1: 161.975 MHz AIS2: 162.025 MHz	Frequency: 156.025 to 162.025 MHz in 25 kHz steps
Channel Bandwidth	25kHz
Channel Step	25kHz
Modulation Modes	25kHz GMSK (AIS, TX and RX)
Bit rate	9600 b/s \pm 50 ppm (GMSK)
RX Sensitivity	Sensitivity (min. – 107dBm, -114dBm typ.) 25kHz (Message Error Rate 20%)
	Co-Channel 10dB

Parameter	Value
	Adjacent Channel 70dB
	IMD 65dB
	Blocking 84dB
Environmental	IEC 60945
	Operating Temperature: -25°C to +55°C
	IEC 62287, IP54 (Under deck use)
Supported AIS - Reporting Messages	<u>Receives all types of AIS-Messages (this includes also the diver's messages) and passes these over the NMEA0183 interface to the connected device (Chart Display, Notebook,...)</u>
AIS-Software version:	<u>1.1.X</u>
Compass safe distance to standard magnetic compass	<u>0,80m</u>

8. DECALARATION OF CONFORMITY

easyDIVE-POS (Receiver Unit)

Part No. A05x
Manufacturer: Weatherdock AG, Sigmundstrasse 180, 90431
Nürnberg Germany

Standards:

The easyDIVE-POS receiver is a composition of approved devices. The integrated AIS receiver is a type : "easyTRX2", A034 from Weatherdock AG.

The **easyTRX2** is approved by the following standards:

ITU-R M.1371-3, 2007

EN 60945, 2002

IEC 62287-1, 2006

IEC 61108-1, 2003

IMO MSC. 74 (69) Annex 2

R&TTE Directive 1999/5/EC

BSH-Type Approval No.: BSH/46162/4321734/10

9. BOX CONTAINS

- easyDIVE-POS receiver with integrated AIS receiver (easyTRX2) and electronic chart plotter (SEIWA)
- Manual

10. AVAILABLE ACCESSORY

Please contact specialized distributors.

11. FAQ

12. SUPPORT

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Contact your local dealer for WEATHERDOCK AIS support.

If the dealer cannot help anymore, you can contact our service department:

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or
Tel:+49 911 376638 - 36

13. WARRANTY

This Weatherdock product is warranted to be free from defects in materials or workmanship for 24month 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.

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If you choose to use the EasyTRX2 and/or/or easySPLIT or both in a boat, it is the sole responsibility of the owner/operator of the EasyTRX2 to secure the easyTRX2 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 EasyTRX2 to the exclusion of safe operating practices.