

„easyDIVE-POS“ - Transmitter
Manual

easyDIVE-POS
Diver-Locating & Alerting System
Product No.: A051
Rev. 1.0

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PLEASE READ THIS FIRST!

Safety Precautions

The easyDIVE-POS contains NiMH batteries. When the device is used at temperatures outside the limits of -20°C and $+55^{\circ}\text{C}$, the useful battery capacity is reduced. Keep the device away from hot environments, because at temperatures of more than $+70^{\circ}\text{C}$ the batteries inside the easyDIVE-POS could cause damage. NiMH batteries shall be given to the recycling process and should not be given to the home garbage. The easyDIVE-POS produces electromagnetic fields, which could interfere medical devices. For safety reasons store this device so that children cannot reach it. The manufacturer is not responsible for damages or failures that are caused by the easyDIVE-POS, damaged battery pack or misuse by the user. Use this device only together with certified equipment. Other equipment could damage the easyDIVE-POS. Clean this device with a clean, dry and soft blanket. Do not use aggressive or acid liquids and chemicals for cleaning. Do not open the device on your own. Unpermitted opening of the easyDIVE-POS could damage the device and the warranty is lost.

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. 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. Information contained in this manual is liable to change without notice. Weatherdock AG, disclaims any liability for consequences arising from omissions or inaccuracies in this manual and any other documentation provided with this product.

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ATTENTION:

PLEASE USE THE EASYDIVE-POS CAREFULLY AND NOT UNINTENDED.
ALSO THE EASYDIVE-POS WILL NOT OPERATE AUTOMATICALLY. IT MUST
BE INITIALISED BY THE USER I
N CASE OF EMERGENCY

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Revision of the operation manual

Rev. 1.0 Author: Jürgen Zimmermann, 6. May 2010

Congratulations!

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

1. SHORT DESCRIPTION



The easyDIVE-POS is a portable battery powered AIS transmitter with an integrated GPS-receiver.

The device is intended for the use in diving operations.

The easyDIVE-POS operates as a VHF-Transmitter (Personal Locator Beacon) and it can be activated in two situations by pressing two different buttons:

- (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 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 ship's 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 range depends on the height of the transmitters' antenna over sea level. The range is approx. 3-5 nautical miles, if the height of easyRESCUE's antenna is close above sea level assumed that the receiving antenna is at a height of 3-4 m (ship's VHF antenna). SAR helicopter can locate the transmitter even at distances of more than 40 nautical miles.

The easyDIVE-POS uses the standard AIS positions report, which is also used by AIS Class A stations. That means almost all AIS stations (commercial vessels (Class A) and pleasure boats (Class B)) can receive these messages and show the easyDIVE-POS on their display.

The NiMH battery pack provides a capacity that ensures an operation time of more than 72h, when activated.

This device maintains water tightness down to 80-100m depth, not unduly affected by seawater or oil and is resistant

to sunlight. It withstands drops from a height of 20 m into water.

The NiMH batteries can be recharged easily using the charging station, that can be purchased by an authorized distributor.

2. ACTIVATORS AND INDICATORS



2.1. Activating elements

2.1.1. Slider

The transparent slider protects the easyDIVE-POS against unintended activation. Push the cover to the top in order to give free the button "ON". Or push the cover to the bottom in order to give free the button "ALERT".

2.1.2. Button "ON"

Pressing the button „ON“ the easyDIVE-POS enters the 'Search" mode (transmitting diver's position without alerting the AIS).

If this button is pressed again for 3 seconds, the search mode will be terminated and the device is turned off.

2.1.3. Button "ALERT"

With the button "ALERT" the device can be activated in case of distress (transmitting diver's position alerting the AIS).

. The "alert" mode can be terminated by pressing the ALERT button for 3 seconds. The easyDIVE-POS stops AIS transmissions and turns off.

2.2. Indicators

2.2.1. GPS LED

The green LED with the marking „GPS“ is blinking, when the device receives GPS signals and is able to get a position fix. If the GPS LED does not blink, there is not GPS reception possible.

2.2.2. ON LED

The green LED with the marking „ON" is blinking, when the easyDIVE-POS is activated in case of search (transmitting diver's position without alerting the AIS).

2.2.3. ALERT LED

The yellow LED with the marking "ALERT" is blinking, when the easyDIVE-POS is in distress mode.

2.2.4. Flash-LED

The white LED is flashing, when the easyDIVE-POS is in "ON" or "ALERT" state. It is used to support the search in darkness.

3. OPERATION INSTRUCTION

3.1. Activation "ALERT"

- **Activate the device in case of distress only!** Push the slider to the bottom so that the antenna extends. Caution: The antenna extends with force. So do not hold the device close to your head.



- Press the button „ALERT“.
- The LED's start flashing in intervals of 2 seconds. Check that the GPS-LED should start flashing after 30-60 seconds after activation. If this LED does not start flashing, double check if the easyDIVE-POS is not covered by metal parts. It should have line of sight to the sky.
- When the easyDIVE-POS is carried at a life vest, extend the antenna right up and take care, that the antenna is as high as possible over the sea level.
- To deactivate the easyDIVE-POS press the ALERT button for more than 3 seconds. The LED's stop flashing.

Otherwise the device operates as long the battery capacity allows to.

3.2. Activation "ON"

In regular situation, where the diving ship is searching for the divers, you use this activation.



- Push the slider to the top so that the antenna extends. Caution: The antenna extends with force. So do not hold the device close to your head.
- Press the button "ON" and take care that the easyDIVE-POS has got line of sight to the sky. This ensures best GPS reception conditions.

- The ON-LED starts flashing every 2 seconds. As soon as a GPS position is available the GPS-LED starts flashing too. The easyDIVE-POS starts transmitting eight position reports every minute.
If the unit loses a GPS position fix, then the GPS-LED stops flashing but the easyDIVE-POS it will transmit the last known position.
- With the easyDIVE-POS receiver connected to a standard chart plotter or laptop with navigational software you can check the transmission of the easyDIVE-POS transmitter. Normally the chart plotter or navigational software shows a ship symbol or a circle on the display. If you move the cursor to that symbol, you get additional information about the easyDIVE-POS transmitter. In the VHF messages of the easyDIVE-POS transmitter there are following information included:

- **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),**
- **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.

- Each time the easyDIVE-POS receives a message of a easyDIVE-POS transmitter, there is a acoustic alarm
- The ON-mode can be terminated by pressing the button „ON“ for more than 3 seconds. The LEDs stop flashing and the device turns off.

4. INSTALLATION TIPS

5. CHARGING THE BATTERIES

The easyDIVE-POS can be recharged in the Battery-Charger. The Battery-Charger is an accessory with the product number B050 and can be purchased by your distributor. Inside the easyDIVE-POS there are NiMH batteries, which have got a capacity of around 72 h operation time. These batteries are high quality batteries with very low self discharge. So you can store the fully charged easyDIVE-POS for more than three month without a significant capacity loss.



Place the easyDIVE-POS into the Battery-Charger and turn on the ~115 / 230 V mains power of the charger.
The charger turns the red LED on, when it is charging. The green LED turns on, when the batteries are fully charged.



6. PROGRAMMING

The easyDIVE-POS can be programmed with information, that is included in the VHF messages.

Except the Unit-ID, which is a unique number, every data field can be changed.

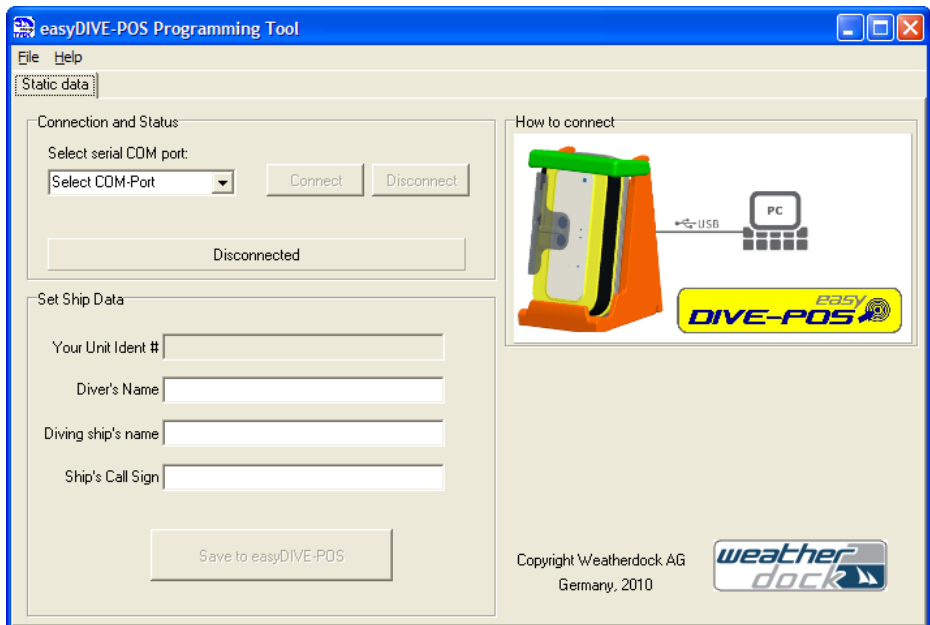
In order to program the easyDIVE-POS you need the Battery-Charger unit B050. The Battery-Charger has got an USB-cabel which you connect to a PC or laptop.

With the Battery-Charger comes a CD-ROM with the installation software for the PC.

Insert the CD-ROM into your PC or Laptop and start the setup program.

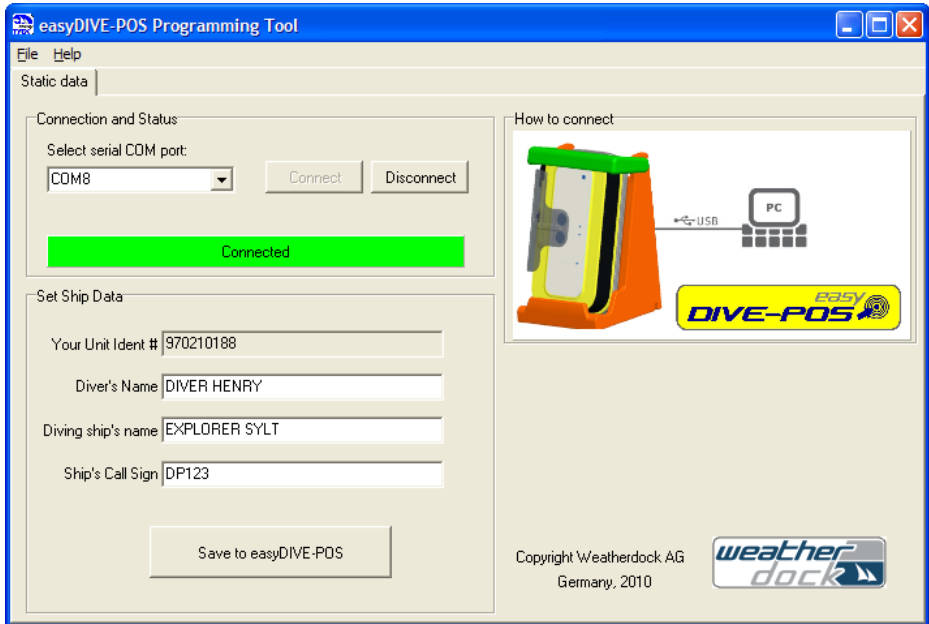
On the Windows-Desktop you will see the icon of the easyDIVE-POS programming software.

When you double-click that icon the following program window will open:



Now you have to turn on the easyDIVE-POS by pressing the "ON" button. When the LEDs of the easyDIVE-POS start

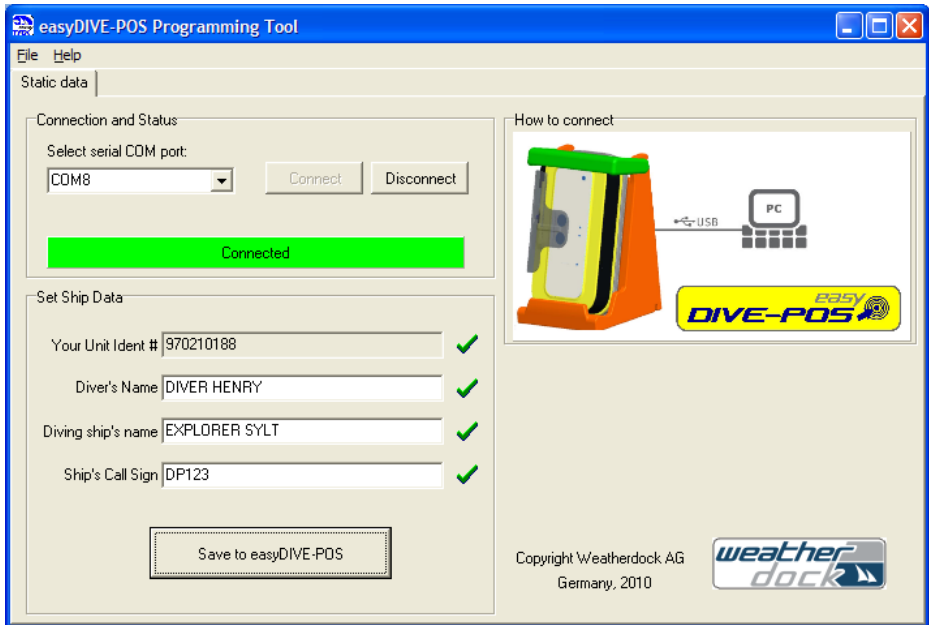
flashing go to the next step in the PC software and select the right COM-Port and press "Connect". After that the following picture will occur:



The contents shown above are just an example. The Unit Ident number cannot be changed. In case of changing this Unit-ID or changing the VHF frequency channels, which might be necessary in some countries, contact your distributor. He is authorized to change the Unit-ID and the frequencies.

You can enter a name, which could be the name of the diving person. You can also enter the name and call sign of the ship the diver belongs to.

Then you press "Save to easyDIVE-POS". When everything went O.K. you get the following window:



Now you should turn off the easyDIVE-POS. The previously programmed data are stored in non-volatile memory. So easyDIVE-POS need not to be programmed again and again. The data remain even if the device is powered off. But you can change the contents later by repeating this process.

7. HOW DOES THE SYSTEM WORK

On the diving vessel, who is searching for the divers, there several possibilities for receiving and displaying the easyDIVE-POS-messages. One possibility is the easyDIVE-POS receiver connected to an electronic chart display (see figure).

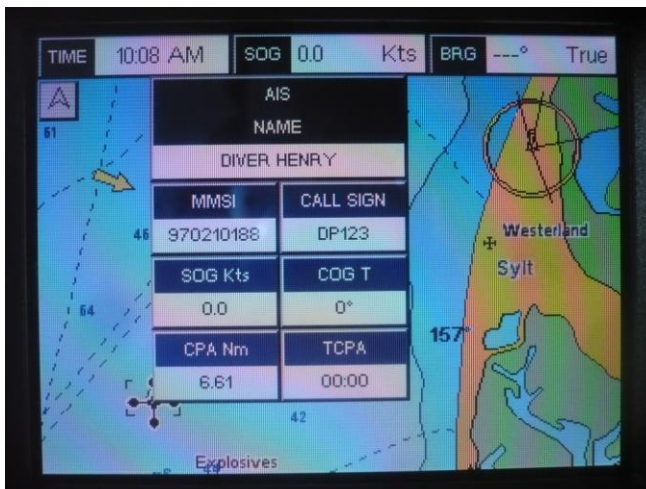


When the diver has activated the easyDIVE-POS transmitter, the receiver gets the VHF messages. A symbol appears on the chart display showing the Unit-ID, name and position of the diver.

So the ship can easily search and find the diver using the chart display as a navigational system.



Moving the cursor to the "diver's" symbol (here triangle) the following table occurs automatically on the screen:



So you see the divers name and Unit-ID: "DIVER HENRY", 970210188.

The easyDIVE-POS receiver is designed as a portable device on a vessel.

It is also possible to use a standard 2-channel AIS receiver (e.g. easyAIS-IS), where one channel is tuned to the proprietary frequency and the other channel remains on the AIS frequency.



These AIS receivers have got a standard NMEA0183 interface, which can be connected directly to almost all kind of electronic chart plotters on the market. These electronic chart plotters on the market are mostly able to display AIS targets. Therefore they will also show the divers position as a simple triangle symbol.

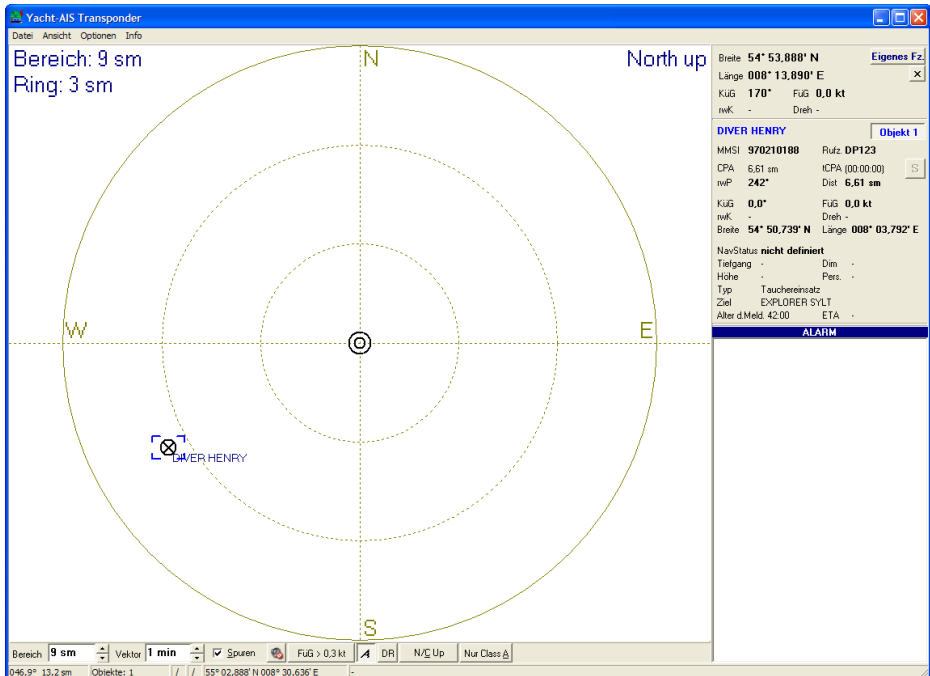
If you want to use a laptop or netbook for displaying the diver's position, you just connect the AIS receiver to the COM port or USB port. There are a lot of navigational software on the market (even fee ware), which can display AIS targets from the NMEA0183 output of the AIS receiver.

(Examples of navigational software: Chart Navigator Pro, Sea Clear, Fugawi, Yacht AIS, etc.)

Here is an example using the software "Yacht-AIS":

Your ship is in the center of the screen and the position of the diver is plotted relatively. You can see the distance (here 6.62 nm) and the bearing (here 242°).

This software shows also the name of the diver close to the symbol. So if you have more symbols on the screen, you could easily identify them.



8. TECHNICAL DATA

Parameter	Value
Dimension	130 x 30 x 70 mm
Weight	380 g
DC supply	rechargeable NiMH-batteries
Frequency	Diver locating: Marine band programmable by distributor : 156.025 ... 162.025 MHz (contact local authority for frequency assignment) AIS-SART : 161,975 MHz and 162,025 MHz
Radiated Power	> 1 W (typ.) (min. 500 mW)
GPS receiver	Approved to IEC 61108-1
VHF-Antenna	extended, vertical polarized
Operating time	min. 72 hours with fully charged batteries
Battery storage (fully charged)	min. 3 month without significant loss of charge
Operation temperature range	-20°C to +55°C
Storage temperature range	-30°C to +70°C
Display	3 LEDs and a "Flash"-LED
Activators	2 buttons
Standards	IEC 61097-14, IEC 60945, ITU-R M.1371-3, IMO Res. MSC.246(83), IEC 61108-1
Unique ident number	Starts with 970XXXXXX, please see your product label on the unit (can be changed by authority only)

Parameter	Value
Supported AIS messages	<p><u>Msg. 1: (AIS or proprietary channel)</u> AIS Positions Report (Dynamic data) transmitted: 6 / 8 times per minute. Unit-ID: 9 figures (unique) Position (Lat and Lon), Speed over ground (SOG), and course over ground (COG).</p> <p><u>Msg. 5: (proprietary channel only)</u> Transmitted every 4 minutes. Unit-ID, Diver's name, Ship's name, Ship's call sign</p> <p><u>Msg.14: (AIS channel only)</u> Safety related message transmitted: Twice every 4 minutes. Unit-ID: (same as in Msg. 1), Text : "SART ACTIVE" in distress ("ALERT"-state)</p>
Environment	<p><u>Waterproof:</u> Down to 100m water level</p> <p><u>Exterior Finish:</u> Highly visible yellow</p> <p><u>Compass safe distance:</u> 80cm</p> <p><u>Mechanical shock</u> Drop into water: 20 m Drop on concrete surface: 1m</p> <p><u>Thermal shock</u> Temperature difference: 45 K</p> <p><u>Resistance</u> Oil, seawater and sun light resistant</p>

9. DECALARATION OF CONFORMITY

easyDIVE-POS (Loacting device for divers) GMDSS-Part 14 : AIS Search and Rescue transmitter

Part No. A051
Manufacturer: Weatherdock AG, Sigmundstrasse 180, 90431
Nürnberg Germany

1) Proved performance:

- Up to 8-12nm by a ship with AIS receiver and an receiving antenna height of approximately 5 m height
- Up to 40 nm (from a SAR helicopter (altitude 1000 ft)
- Very compact and rigid.
- 80m water depth level approved

2) Standards:

easyDIVE-POS is based on the easyRESCUE.

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

ITU-R M.1371

EN 60945 (2002)

IEC 61097-14 (2010)

IEC 61108-1 (2003)

MSC.246 (83) (IMO Resolution)

R&TTE Directive 1999/5/EC

BSH-Type Approval No.: BSH/4615/4361565/10

easyDIVE-POS technical specification is according to above standards, with the exception of the "POS" feature and its functionality.

10. BOX CONTAINS

- easyDIVE-POS transmitter, fully functional
- Manual

11. AVAILABLE ACCESSORY

- Battery charger B050 with programming software

Please contact specialized distributors.

12. FAQ

Problem	Reason	Solution
The GPS-LED is blinking at the end of the test	No GPS reception	Repeat the test with line of sight to the sky.
Cannot activate the device.	Battery is empty	Recharge the NiMH batteries only with the charger station for the easyDIVE-POS
Battery change		The NiMH batteries cannot be changed because of the sealing.

13. SUPPORT

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systems, with the express written approval of WEATHERDOCK, as the failure of such components could cause the failure of the WEATHERDOCK device or system. If these fail, it is reasonable to assume that the safety of the user or other persons may be endangered.

Contact your local dealer for WEATHERDOCK AIS support.

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

Weatherdock AG
Sigmundstrasse 180
D.90431 Nürnberg
Tel:+49 911 376638 - 35
or
Tel:+49 911 376638 - 36

14. 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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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 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.

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