ENGLISH

„easyRX"
Manual

easyRX
Two channel AIS Receiver
Product No.: A067

Revision 1.0

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PLEASE READ THIS FIRST!

WEATHERDOCK **GENERAL WARNINGS**

All marine Automatic Identification System (AIS) units utilize a satellite based system such as the Global Positioning Satellite (GPS) network or the Global Navigation Satellite System (GLONASS) 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. It is desirable wherever possible therefore to verify both your vessels AIS derived position data and other vessels AIS derived position data with visual or radar based observations.

The easyRX software is intended for use as an installation and configuration tool. The application is not a navigation tool and should not be used as such.

LICENSING

IMPORTANT: In most countries the operation of an AIS unit is included under the vessels marine VHF license provisions. The vessel on to which the AIS unit is to installed must therefore possess a current VHF radiotelephone license which lists the AIS system and the vessel Call Sign and MMSI number. Please contact the relevant authority in your country for more information. In accordance with a policy of continual development and product improvement the easyRX hardware and software may be upgraded from time to time and future versions of the easyRX 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 AIS 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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WARNINGS AND PRECAUTIONS

IF YOU CHOOSE TO USE THE EASYRX OR THE EASYSPLIT OR BOTH IN A BOAT; IT IS THE SOLE RESPONSIBILITY OF THE OWNER/OPERATOR OF THE EASYRX (AND OR THE EASYSPLIT) TO SECURE THE BOAT SO THAT IT WILL NOT CAUSE ANY DAMAGE OR PERSONAL INJURY IN THE EVENT OF AN ACCIDENT.

SOME VESSELS DO NOT CARRY AIS.

IT IS IMPORTANT AT ALL TIME TO KEEP A PROPER LOOKOUT.

THE "easyRX" IS NOT A SUBSTITUTE FOR GOOD SEAMANSHHIP.

This software uses components and source code developed by other companies or groups.

Microsoft .Net Framework V2.0: Copyright © 2005 Microsoft Corporation

Pos	Date	New version	Author	Description of change
1	06. Sep ´12	1.0	Schuster	Creating

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Licence Number BSH:
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Congratulations!

Thanks to purchase a unit from the Weatherdock AG. This testifies your high technical competence, because you purchased the best available product on the market. Thank you.

PREREQUISITES

The easyRX programming application is designed to operate with Microsoft Windows® 2000 (SP 3), XP (SP 2) and above. Recommended minimum system requirements are:

- Microsoft Windows® 2000 SP3 or Microsoft Windows® XP SP2
- Display resolution of at least 1024 x 768
- One USB port
- A pointing device (mouse or equivalent)

1. General Information to AIS

1.1 What is AIS

AIS stands for **A**utomatic **I**dentification **S**ystem. AIS increases navigational safety and collision avoidance by transmitting vessel identification, helping to reduce the difficulty of identifying ships when not in sight (e.g. at night, in radar blind arcs or shadows or at distance) by broadcasting navigational intentions to other vessels by providing ID, position, course, speed and other ship data with all other nearby ships and land based stations.

According to IALA regulations, AIS is defined as follows:

AIS is a broadcast Transponder system, operating in the VHF maritime mobile band. It is capable of sending ship information such as identification, position, course, speed and more, to other ships and to shore. It can handle multiple reports at rapid update rates and uses Carrier Sense Time Division Multiple Access (CSTDMA) technology to meet these high broadcast rates and ensure reliable and robust ship to ship operation.

The IMO defines the performance standards as follows:

Ship to ship working, ship to shore working, including long range application, automatic and continuous operation, provision of information messaging via PC and utilization of maritime VHF channels

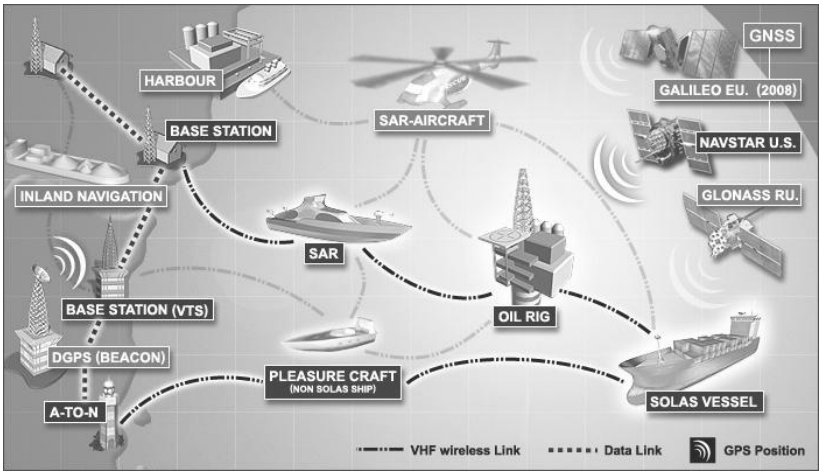
The Modules:

GPS system, VHF Antenna, and the Data Power Cable and the appropriate application software.

AIS are required to function flawlessly in a variety of modes.

1.2 What AIS classes do exist?

The scenario below shows a full AIS coverage area (including all applications and complete shore infrastructure).



There are two classes of AIS units fitted to vessels, Class A and Class B. In addition AIS base stations may be employed by the Coastguard, port authorities and other authorized bodies. AIS units acting as Aids to Navigation (A to N) can also be fitted to fixed and floating navigation markers such as channel markers and buoys.

1.2.1 Class A

Class A units are a mandatory fit under the safety of life at sea (SOLAS) convention to vessels above 300 gross tons or which carry more than 11 passengers in International waters. Many other commercial vessels and some leisure craft also may be fitted Class A units.

The **Class A** operation consists of three different types of messages:

Dynamic information:

- MMSI number
- position of the ship (derived from GPS)
- time, when the position was measured in UTC
- course over ground (COG)
- speed over ground (SOG)
- heading (HOG)
- ship status
- rotational speed/turn rate

Static information:

- call sign and name of the vessel
- length and width of the vessel
- IMO-number of the vessel, if existent
- type of vehicle
- position of the GPS sensor onboard

Journey-related information:

- draught of the vessel
- type of cargo
- port of destination and estimated time of arrival (ETA)
- route plan, optional

The block of dynamic information is the most important block looking for threatening collisions. Therefore this block of information is trans-

mitted in a compulsory way, depending on the vessels movement. The following table shows the mandatory repetition rate of Class A transmissions linked to the ship's movement:

- anchored vessels 3 minutes
- vessels at 0 – 14 kn 10 seconds
- vessels at 0 – 14 kn, fast maneuver 3.3 seconds
- vessels at 14 – 23 kn 6 seconds
- vessels at 14 – 23 kn, fast maneuver 2 seconds
- vessels at > 23kn 2 seconds
- vessels at > 23 kn, fast maneuver 2 seconds

Static information as well as information belonging to the journey is dispersed every 6 minutes.

The reporting intervals correspond to both radio channels (161.975 MHz, 162.025 MHz) together.

1.2.2 Class B

Class B: EN62287, 2005: class B operation is described in the standard EN62287, published in 2005.This document is obligatory for class B. Pages 15 and 38 describe the operation:

Class B units are designed for fitting in vessels which do not fall into the mandatory Class A fit category.

The easyRX is a Class B AIS unit without transmitter function (RX only).

This unit receives all AIS messages on either AIS frequencies or proprietary frequencies, which can be configured.

Think about

The comparison is done only for dynamic data transmission, because these datasets contain the relevant information to calculate a future collision point in time and distance, as well as allow the threatened ships to communicate (MMSI number is stringent part of dynamic data information) by VHF. Additionally, 2 more facts concerning class B operation need to be mentioned:

Unlike the class A service, which is using the SOTDMA method (self organized time division multiple access) with predefined timeslots (the ship listens to the traffic and the information containing in all other telegrams and defines its own raster of transmission timing, which is then distributed to all other participants within the radio range) the class B service is using a "listen-before-talk-method". This means, that before transmitting, a ship has to observe the radio channel, whether to be allowed to transmit, if the channel is not occupied, or whether to wait for a free time slot.

To avoid disturbance of the professional class A service in crowded areas, higher-ranking authorities can switch off all class B transponder activities, which will probably never happen, but it should be mentioned.

Above given information is not complete and should give only an overview about the AIS topic. For more details please have a look to the following links:

US Coast Guard – http://www.navcen.uscg.gov/enav/ais/default.htm

IMO – www.imo.com

http://www.aislive.com

2. SCOPE OF DELIVERY

In the carton there is contained:

- The easyRX
- The cable for the easyRX incl. separate USB cable
- This manual for the operation of the easyRX
- The installation CD for the configuration software

3. MOUNTING AND INSTALLATION

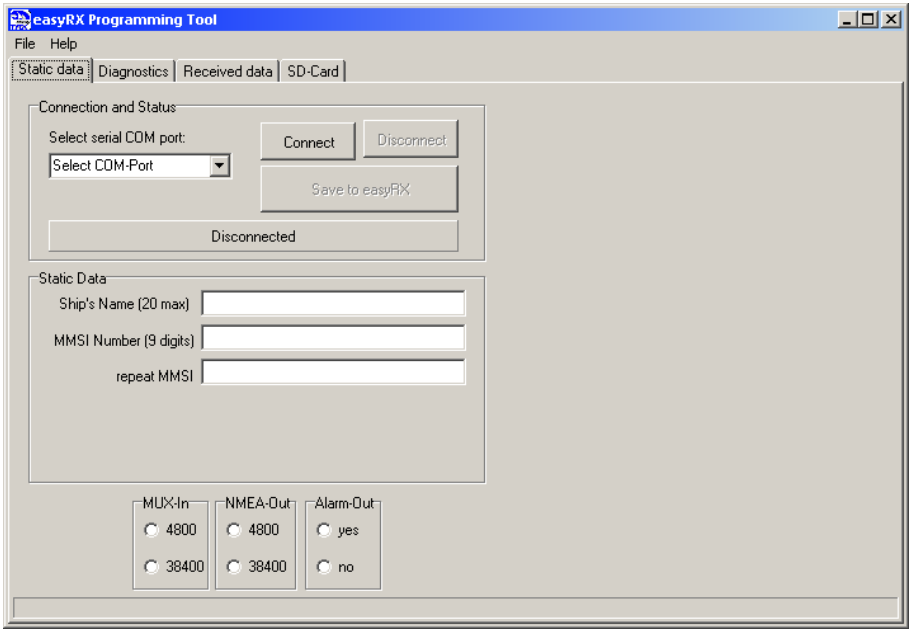
3.1 Programming Procedure

- Installation of the PC software for programming boat specific data
  - Connection of the easyRX by means of the supplied cable to the USB port of the PC
  - THEN, connect the easyRX to the power, not before!

To use this program for configuring your easyRX, the "easyRX Programming tool" must be installed to your PC.

- Insert the installation CD.
- When the installation does not start automatically, locate the file "setup.exe" on the CD-ROM drive and double click on this file to start the installation process.
- Follow the screen prompts
- Start the easyRX programming software to configure ship data (enter the MMSI carefully). It's the only time you'll need the programming software.

Please fill out all necessary data.



Enter the vessel's information in the appropriate fields:

- MMSI number: enter the vessel's Maritime Mobile Service Identity number (9 digits)
  This is an official number like a license plate at a car. Misuse will be punished very hard in different countries. Please be aware of that.

  CAUTION:

  For security reasons the MMSI of the vessel cannot be changed once it has been programmed. Do not program the MMSI unless you are certain you have the correct information. Please check the entered number carefully. If the programmed MMSI is incorrect the AIS transponder will need to be returned to the supplier for factory reset.

- Ship's name: enter the name of the vessel (20 characters maxi-

mum)

- Select the appropriate baud rate for your PC or chart plotter device (by default it is set to 38400 baud).

CAUTION:

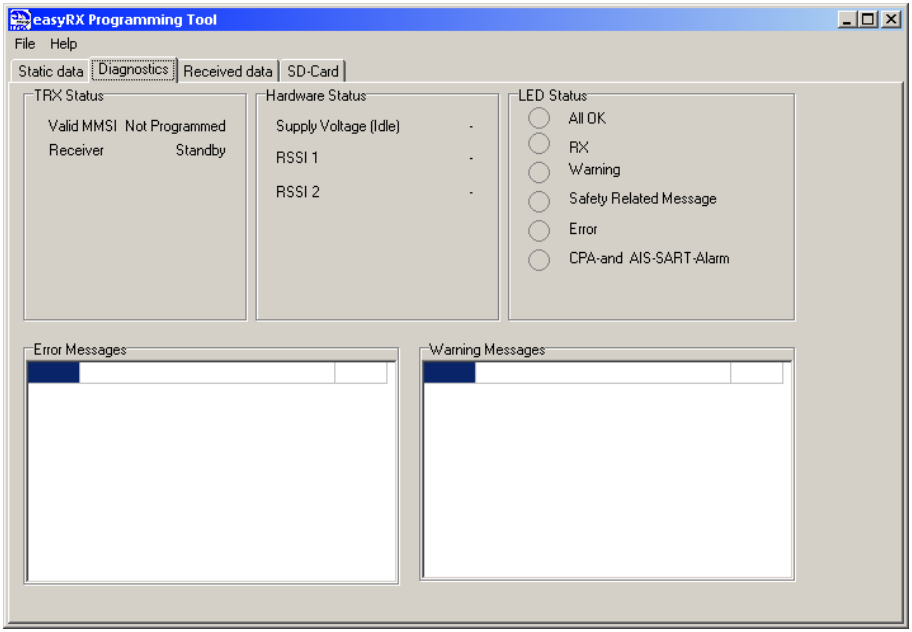
If the easyRX is set to 4800 Baud transfer rate, in high traffic areas it might be the possibility of missing some AIS position reports of other vessels.

The reason for that is the slower data throughput because of the data rate.

Weatherdock does not take any responsibility for a full and reliable reception of all AIS data around, if the RS422 baud rate is set to 4800 baud.

3.2 Diagnostics

If you select the tab "Diagnostics" you'll get lot of information concerning the status quo of the easyRX.



"TRX status" gives you information about:

- Valid MMSI:
  Ok is only given when a correct MMSI was entered. Status OK is condition for transmitting data.
- Receiver:
  When the easyRX has received AIS data for the first time, the status changes from standby to OK. If there is any fault, ERROR is signaled and the device has to be repaired (Error-LED is on).

Hardware status displays the power situation of the device. If cables are too thin and very long, the voltage may drop down below the "Idle-level". If the drop down is more than 1V, you may use cables with larger copper diameter.

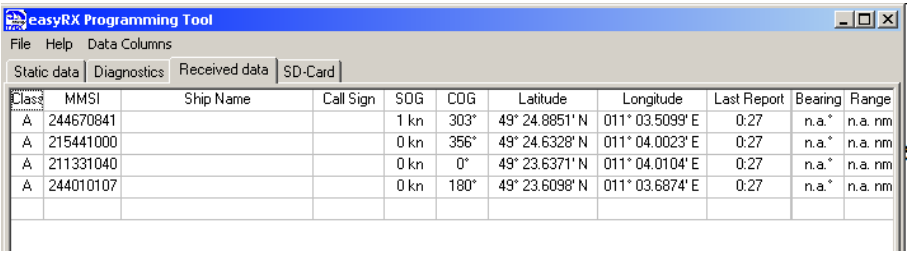
Value RSSI1 and RSSI2 give information, if there are any interferers on the AIS frequencies, which may be caused by a faulty electrical device. If there is none, the status will be OK.

If the self diagnostic of the easyRX noticed any fault, a sort notice will be given in the tables. The easyRX executes a self test every 30 sec. So each fault or warning report has got a countdown of 1 min. This means the report disappears from the table, when the fault is no longer valid after 1 min.

3.3 AIS receiving data

On the tab "Received Data" you can see a list of current received AIS data. By using the drop down menu "data columns" you can blank out columns.

Because the static data report is send every 6 min you have to wait for at least 15 min to see ship names referring to the listed AIS data. If AIS targets are too far away, it might take even more time of receiving the complete data or of receiving nothing, because the vessel has disappeared.



Class	MMSI	Ship Name	Call Sign	SOG	COG	Latitude	Longitude	Last Report	Bearing	Range
A	244670841			1 kn	303°	49° 24.8851' N	011° 03.5099' E	0:27	n.a.°	n.a. nm
A	215441000			0 kn	356°	49° 24.6328' N	011° 04.0023' E	0:27	n.a.°	n.a. nm
A	211331040			0 kn	0°	49° 23.6371' N	011° 04.0104' E	0:27	n.a.°	n.a. nm
A	244010107			0 kn	180°	49° 23.6098' N	011° 03.6874' E	0:27	n.a.°	n.a. nm

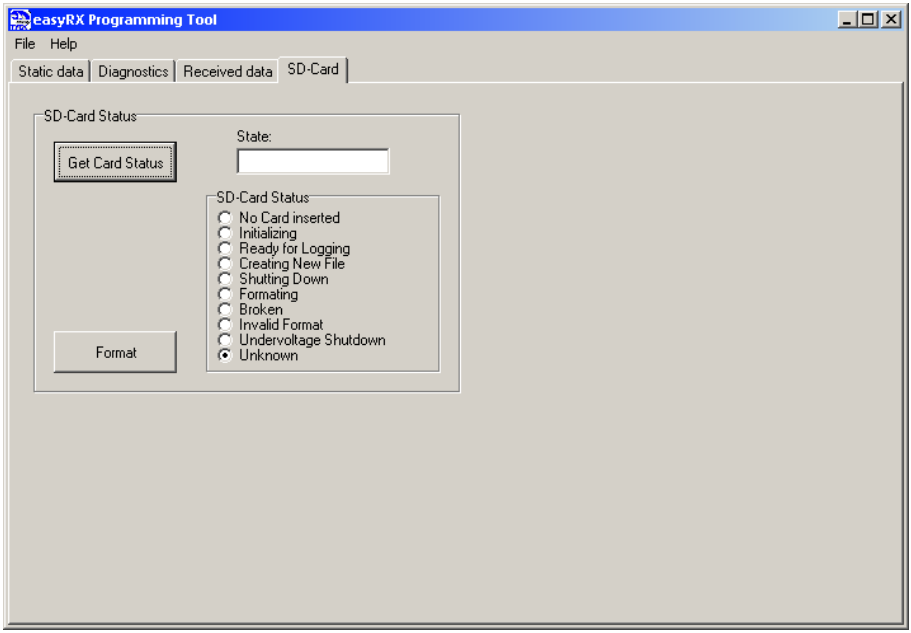
3.4 SD Card Recorder

The tab "SD Card" shows the status quo of the SD recording. "Ready for logging" is given if a well formatted SD Card is inserted.

The easyRX is using the FAT format. If the SD Card has got another format, you have to format it again with the easyRX. It's because the device is storing a special set of files, which enable real time storing of AIS and GPS data.

If the status is “broken” or invalid format” you have to format the SD Card once again with the easyRX. All stored data on it will be erased.

Being formatted with the easyRX you can remove the SD Card at any time without losing any data. In case of power loss the latest received data will be kept on the SD Card.



With your easyRX you get the possibility of recording data to the SD-Card. All Data from the NMEA0183 and the USB will be recorded.

That means that all AIS-Messages together with the GPS-Information will be saved.

You can analyze this data with special software. So you can see your ship and all other vessels around.

Please use SD-Card with a capacity from 1 to 2 GB. Higher capacity is not supported. We recommend SD-Cards from "SanDisk™" for best

compatibility. (SD-Cards without SPI-Mode cannot be used with easyRX).

With a 2GB SD-Card you will be able to save 100 days of AIS-Data. (e. g. Rotterdam, in areas with less traffic you can save more information.)

The only thing you have to do is insert the SD-Card into your TRX2. The device will start logging data automatically.

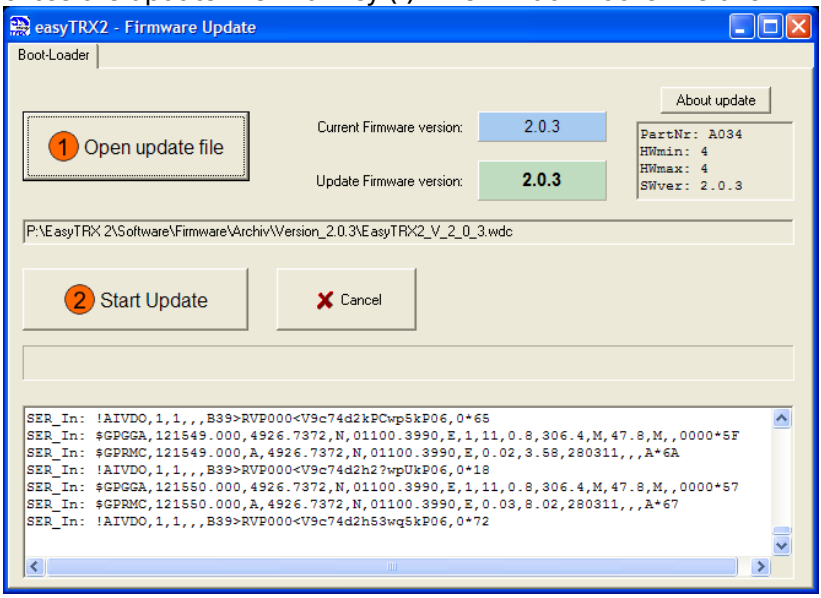
3.5 Software-Update

With the menu button "File => Update" you can do an update of the easyRX software. The latest version is ready to download on our web page. Before updating, you have to check the version number which is installed in the device.

Therefore you have to "Connect" and to click on the menu button "Help". The following information comes up:

Here you can see that it is version 2.2.6

After having downloaded the file, please click on "File => Update" and chose the update-file with key (1). The window looks like this:

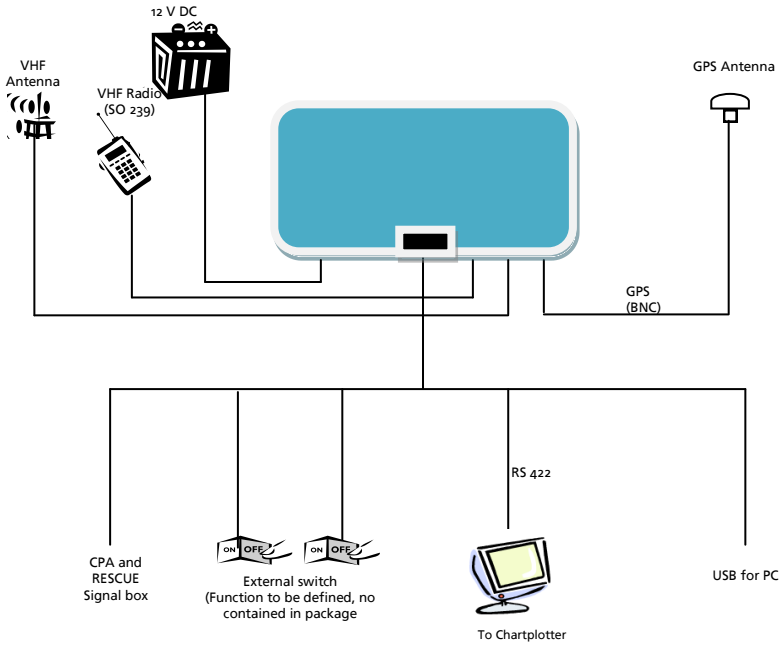


The current as well as the latest version number is shown.

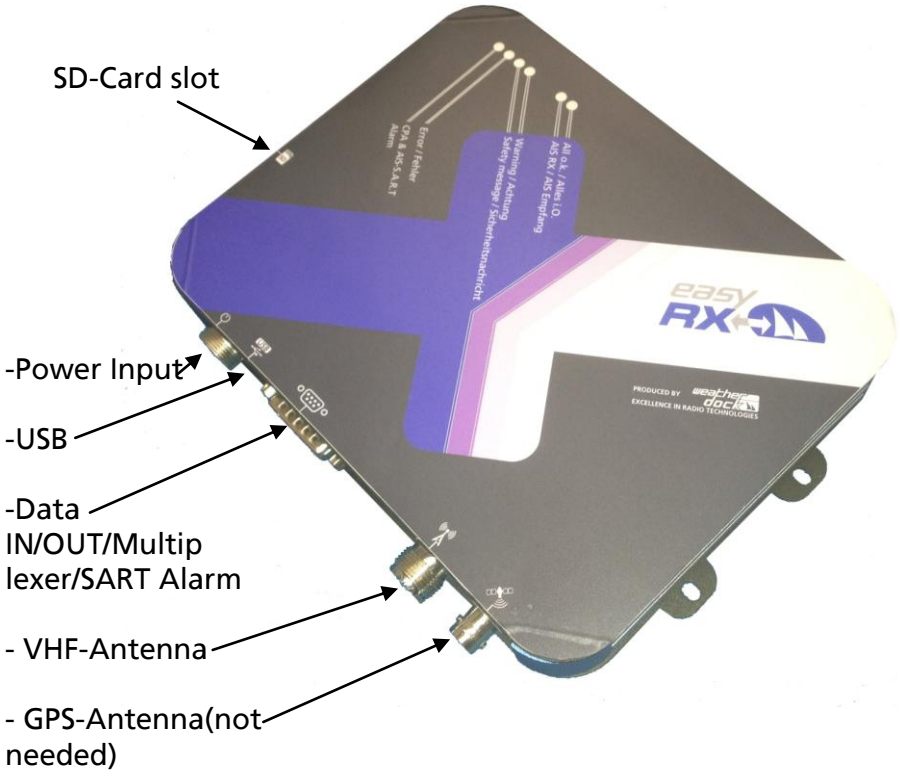
To start the update procedure press key (2). Please make sure that during the update the operating voltage is still on and the PC does not run into stand by or will be shut down!

3.6 Mechanic and electric installation

The schematics of the mounting please take out of the following sketches:



Schematics for the easyRX connection


SD-Card slot
-Power Input
-USB
-Data IN/OUT/Multiplexer/SART Alarm
- VHF-Antenna
- GPS-Antenna(not needed)
Error / Fehler
CAN & 485 SART Alarm
Warning / Achtung
Safety message / Sicherheitsnachricht
All A.I. / Alles I.O.
AIS RX / AIS Empfang
easy RX
PRODUCED BY weatherdock
EXCELLENCE IN RADIO TECHNOLOGIES

Cable Colors and Cable Order

The easyRX is connected to the PC by means of an USB plug. The USB cable is enclosed in the box.

If you want to connect the easyRX to a chart plotter please use the 6-pole cable, marked with NMEA. You need two cables. The white one has to be connected to the NMEA data input of the chart plotter, the green one to the NMEA ground of the input. For the cable connection schematics please look at following table:

Wire colours and definition

Cable group		Quantity of cables	Cable colours	Functionality	Pinnumber
1	RS422 to Plotter	6	Green	NMEA out 38400, (-)	15
2	RS422 to Plotter		White	NMEA out 38400, (+)	7
3	RS422(not on WiFi)		Rosa	NMEA in 38400, (-)	10
4	RS422(not on WiFi)		Grey	NMEA in 38400, (+)	2
5	RS422 MUX		Brown	NMEA in 4k8/38k4 (-)	11
6	RS422 MUX		Yellow	NMEA in 4k8/38k4 (+)	3
7	External switches	4	Green	Mayday switch (-)	13
8	External switches		White	Mayday switch (+)	5
9	External switches		Brown	Silent switch (+)	12
10	External switches		Yellow	Silent switch (+)	4
11	SART ALARM	2	Brown	SART Alarm (-)	14
12	SART ALARM		White	SART Alarm (+)	6
13	**RS422**	**2**	**Grey**	**NMEA Out 4k8/38k4 (-)**	**9**
14	**RS422**		**Yellow**	**NMEA Out 4k8/38k4 (+)**	**1**
	Power	2	Black	Power 11-32VDC (-)	(1)
	Power		Red	Power 11-32VDC (+)	(2)

The brown and the yellow cable of the six pole cable do have a special function.

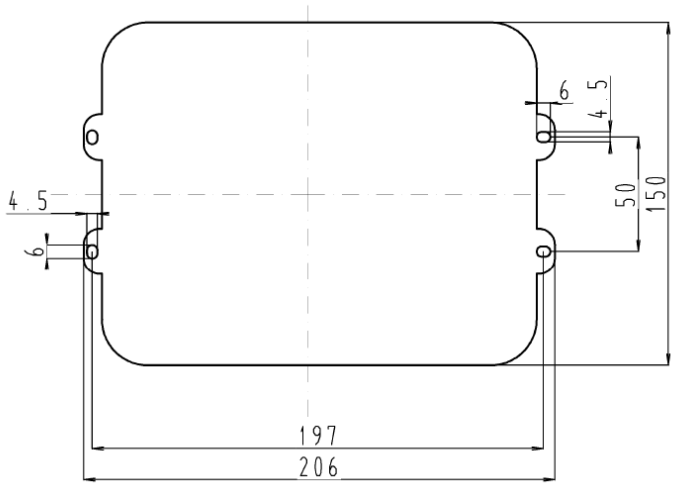
With that two cables further NMEA source data can be passed through to the easyRX to the plotter or the PC.

The easyRX has got an internal multiplexer who is able to upgrade incoming NMEA data of 4800/38400 Baud transmission speed to 38400 Baud. These data are then passed through with the higher speed to the output.

3.6.1 Mounting

Please mount under deck with all plugs at the bottom. Make sure that there is no direct sunlight or spray water to the easyRX.

Please do use the enclosed screws only.



(Dimensions)

Mounting template with hole position

3.6.2 VHF Antenna

Your regular VHF antenna which you're using for VHF radio will be connected to the easyRX

3.6.3 GPS Antenna

The EasyRX does not need any GPS antenna for its operation.
The only reason for having GPS antenna connected is the usage of SD-Card recorder. if you want to use the EasyRX as an AIS-recorder (black box) you need GPS antenna, unless you have an AIS Class A connected to the Multiplexer Input. In that case you need now GPS antenna, because the SD-Card recorder gets the information about position and time from that AIS Class A. For the GPS antenna there is a BNC female bulkhead connector used, that mounts to the back of the case. This port provides the 5V DC feed for the active GPS antenna required by the easyRX unit.

The GPS antenna used must be of the active type (i.e. it should incorporate an LNA) and must be suitable for marine shipboard applications (index of protection, ruggedness, means of mounting, etc.). An antenna should be selected with a gain (in dB) depending on the length of cable between the antenna and the AIS unit; after subtraction of cable and connector losses a minimum total gain of 20 dB should be available at the easyRX unit GPS antenna connector. The GPS antenna to be used for AIS use must be a dedicated antenna, i.e. not shared with any other GPS receiver. Installation of the GPS antenna is critical for the performance of the built in GPS receiver which is used for timing of the transmitted time slots and for the supply of navigational information should the main navigational GPS fail.

We strongly recommend that:

- The GPS antenna is mounted in an elevated position and free of shadow effect from the ship's superstructure.
- The GPS antenna has a free view through 360 degrees with a vertical angle of 5 to 90 degrees above the horizon.
- As the received GPS signal is very sensitive to noise and interference generated by other onboard transmitters, ensure that the GNSS

antenna is placed as far away as possible from radar, Inmarsat and Iridium transmitters and ensure the GPS antenna is free from direct view of the radar and the Inmarsat beam.

- It is also important that the MF/HF and other VHF transmitter antennas are kept as far away as possible from the GNSS antenna. It is good practice never to install a GNSS antenna within a radius of 2 meters from these antennas.

The easyRX is approved with the GPS antenna from Weatherdock, article number: A029. The diameter of the antenna is 60mm, rest of the dimensions below

3.6.4 Connection to a plotter

If you want to connect the easyRX to a chart plotter please use the 6-pole cable, marked with NMEA. You need two cables. The white one has to be connected to the NMEA data input of the chart plotter, the green one to the NMEA ground of the input. For the cable connection schematics please look at above table (Pos.1 and Pos.2)

If the plotter interface is configured to 38400 baud and the plotter is ready for AIS data, received data will be shown immediately.

3.6.5 USB connection with PC/Notebook:

The easyRX is connected to the PC by means of a USB plug. The USB cable is enclosed in the box.

3.6.6 External Devices (additional)

Referring to cable order under 3.7.1 (Pos.11 and Pos.12) it is possible to connect external devices with the brown and white cable, e.g. an external SART Alarm signal source.

The easyCPA-Alarm is such an external signal source. If the easyRX forwards a SART signal the CPA Alarm gives a loudly noise.

4. FOR USE OF THE EASYRX

4.1 Turn ON

After the easyRX is connected according point 3.1 and the 12V supply is switched on, all six visible LED on the top of the unit will illuminate once for a period of one second. Then each second LED in the row will be illuminated for one second and the other LED will be illuminated for one second.

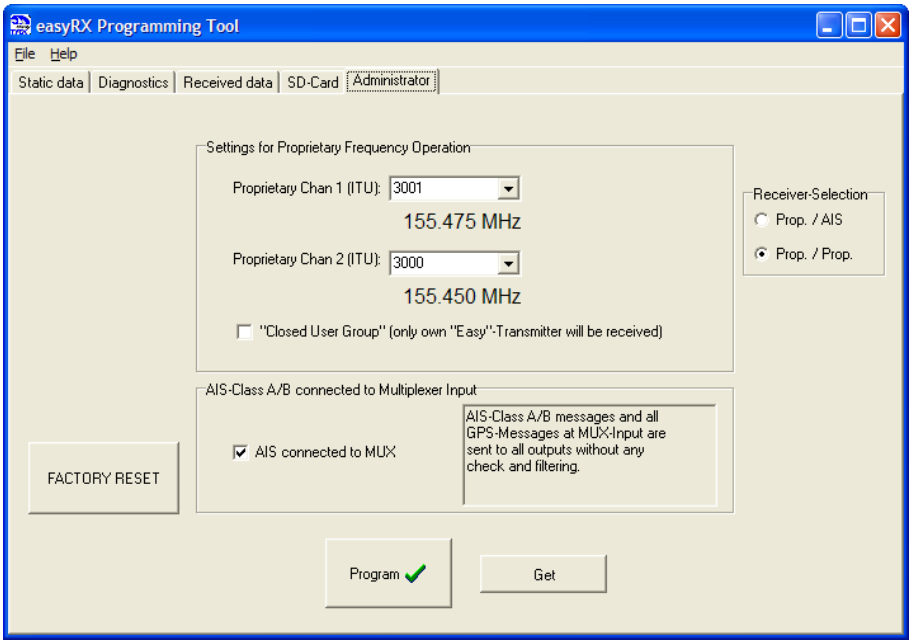
4.2 LED Indication and functions

- CPA & AIS S.A.R.T. Alarm: This LED will illuminate, if a ship is inside the defined and activated CPA Alarm radius (activated for default) or an AIS SART message is received
- Error: This LED will be illuminated, the supply voltage is low, the VSWR value is bad (means bad antenna cable or connection)
- Warning: This LED will be illuminated, if not all static data are programmed (e.g. MMSI)
- AIS RX: This LED will be illuminated each time when an AIS message is received.

5. ADMINISTRATOR SETTINGS

Following settings can only be done by the manufacturer or the administrator and cannot be changed by the end-user.

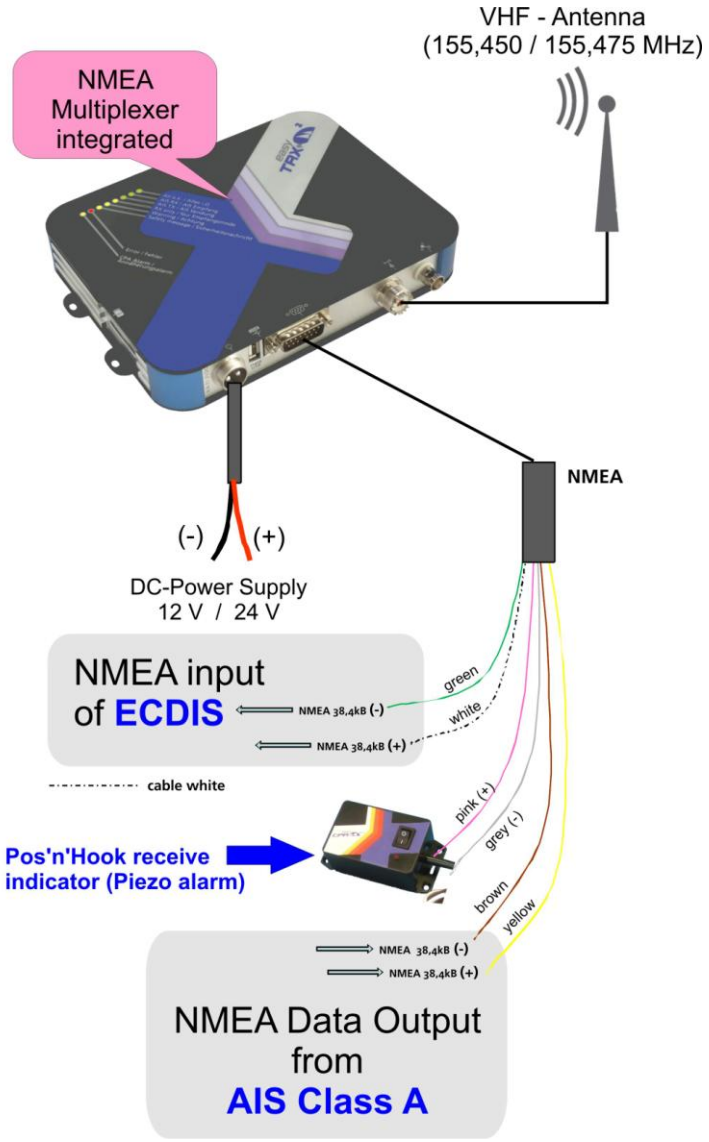
If you have inserted the dongle you will see one hidden page called “Administrator”



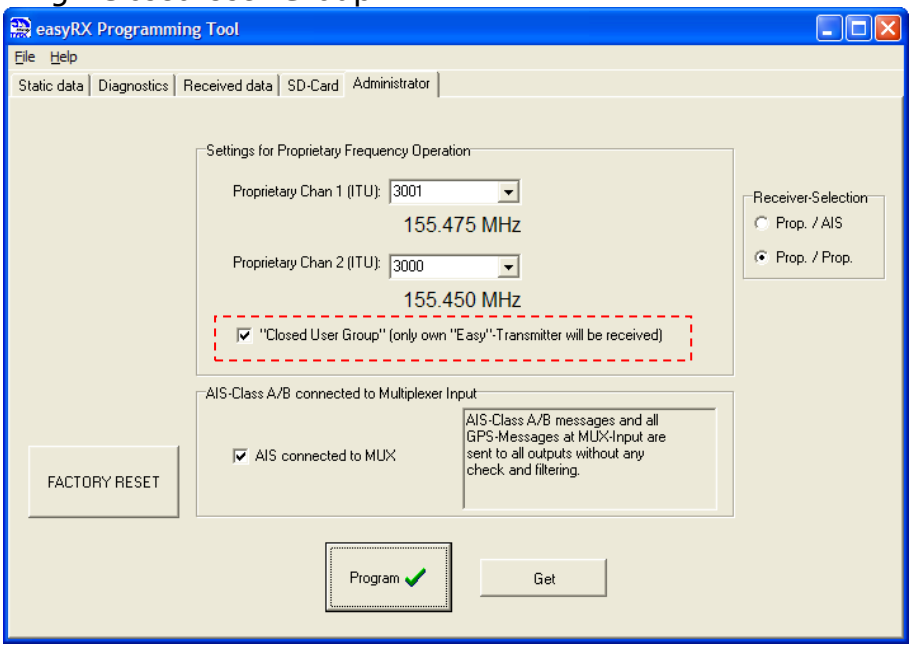
Here you see the "Programming Tool" of the easyRX. The dongle is inserted so you see the "Administrator" page. You see an example setup. Both channels are set to proprietary frequencies and the "Closed User Group" is turned on.

There is another special feature, which should be mentioned here.
If the customer has got an AIS Class-A or Class-B on board, it might be useful to have this and the easyRX also connected to the chart display.
Normally you have to disconnect the AIS Class-A/B from the chart display and to connect the easyRX. But Weatherdock made it possible to have both combined.

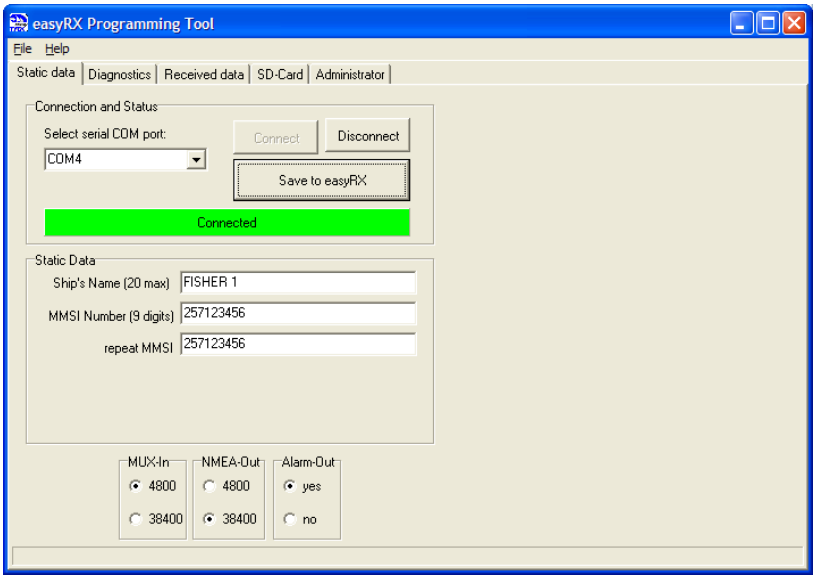
You just connect the NMEA0183 output of the AIS Class-A or B to the multiplexer input (MUX) of the easyRX.
Then in the figure above switch on the checkbox "AIS connected to MUX" and press "Program".
Now you will see all AIS targets (received by the AIS Class-A/B) and all POS'n'HOOK (received by the easyRX) on the chart display at the same time.


VHF - Antenna
(155,450 / 155,475 MHz)
NMEA
Multiplexer
integrated
NMEA
(-)
(+)
DC-Power Supply
12 V / 24 V
NMEA input
of ECDIS
NMEA 38,4kB (-)
NMEA 38,4kB (+)
green
white
cable white
Pos'n'Hook receive
indicator (Piezo alarm)
pink (+)
grey (-)
brown
yellow
NMEA 38,4kB (-)
NMEA 38,4kB (+)
NMEA Data Output
from
AIS Class A

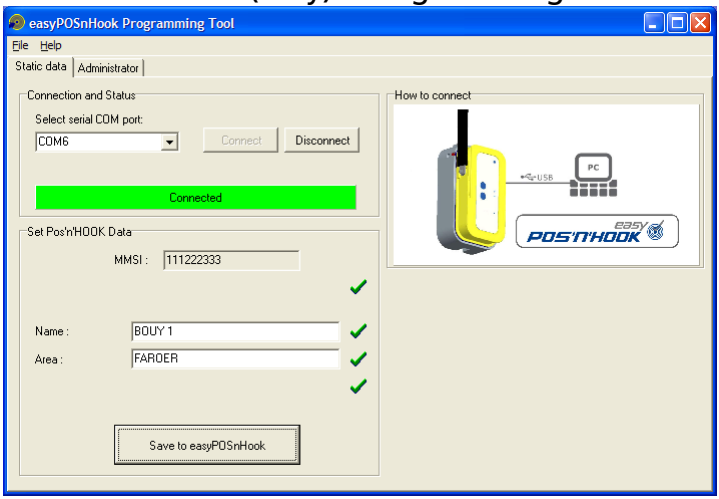
5.1 Closed User Group:

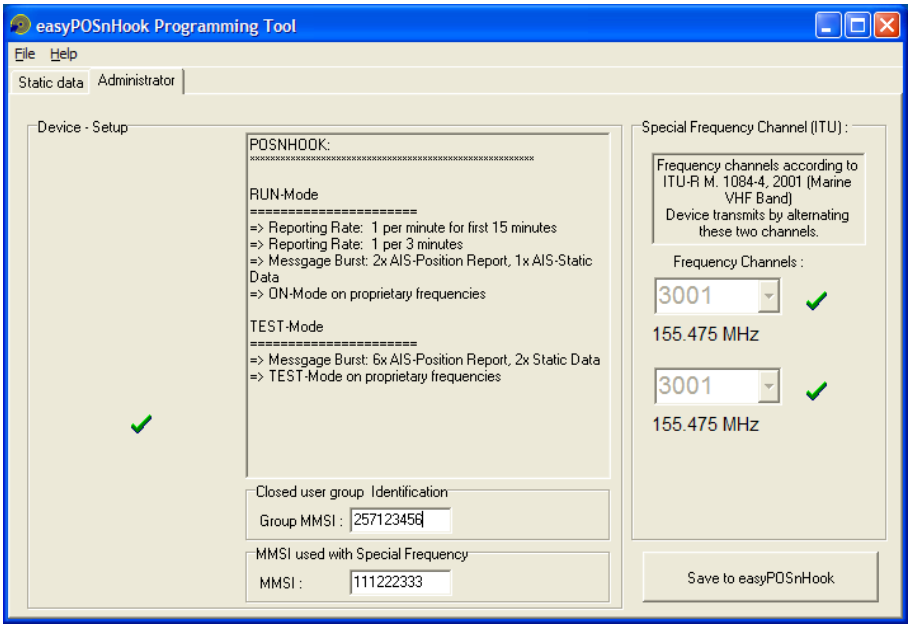


The most important setting is the Parent Ships MMSI. Only the ship with the MMSI equal to the Parent Ships MMSI programmed, will display the easyPOS'n'HOOK. It will prevent foreign ships to see the own easyPOS'n'HOOKs.
With the dongle you have the possibility to disable the "Closed Group Identification" on the easyRX. Devices where the "Closed Group Identification" have been disabled show all easyPOS'n'HOOK in the range. So this could be interesting for official authorities like coast guard.



For information (only) : Programming of Pos'n'Hook device





Here you can see the programming tool of an POS`N`Hook unit.

Also with a dongle you program in the MMSI number of the parent´s ship. Safe everything with a click on "Save to easyPOSnHook".

Now we have following situation:

easyRX with MMSI(called "Parents ship")

POSnHOOK with the MMSI of the parents ship

Now with your easyRX you receive all POSnHook with the own MMSI programmed in.

6. DATA RECORDING – SD CARD

With the easyRX data recording on SD Card is possible. All data put out on NMEA0183 and USB could be recorded on SD Card.

This includes all AIS messages (incoming and outgoing) as well as the

GPS information.

The user can analyze the data with special PC or logbook software which displays your own movement and all other ships within range.

The analyzing tool "SD Analysis" is part of the enclosed CD-ROM. To analyze your data, you have to remove the SD Card from the easyRX and to plug into your PC's card reader.

The software is self-explanatory and easy to use. In this manual we do not elaborate on this software.

The usage of SD Cards with 1GB or 2GB is possible. Other SD Cards are not supported. We recommend "SanDisk™" for best quality and reliability.

With a 2GB SD Card data recording for 100 days in high frequented areas is possible. If there is a lower ship frequency, the 2GB will last even longer.

The easyRX start data recording automatically if the SD Card is insert into the slot until the snap.

Data management on the SD Card will be "first in – first out".

If you switch off the easyRX no data will be lost. If you remove the SD Card during recording, some data might be lost. We recommend to switch off the device fist before removing the SD Card.

ATTENTION : Make sure that you receive a GPRMC sentence (from own GPS-receiver or Multiplexer). This you´ll need for the SDAnalysis tool.

7. TROUBLESHOOTING

Problem	Cause	Solution
Unable to connect to the easyRX	Incorrect connection data	• Verify data COM-Port, etc. or USB port • Com port must be configured correct in the PC (Please see under configuration in the software manual) • Check connection
	Not connected to network or cable	Check if your computer and the EasyRX have connection to the network (IP-connection) or the same serial cable (serial connection)
Changes made to config form not accepted	Entries not valid	Correct the entries and transmit again

8. MAINTENANCE

Unauthorized opening of the easyRX system will invalidate the warranty.

Avoid using chemical solvents to clean the easyRX as some solvents can damage the case material. To clean, wipe down with a damp cloth.

The easyRX contains no user serviceable parts. Contact your Service Agent for repair or for replacing.

9. STANDARDS

This product complies with all the necessary standards under the European R&TTE directive for Article 3.1(a), 3.1(b), 3.2 and 3.3(e). The following standards have been followed in pursuance of this:

- IEC62287-1: 2006-03 Maritime navigation and radio communication equipment and systems – Class B ship borne equipment of the automatic identification system (AIS) – Part 1: Carrier-sense time division multiple access (CSTDMA) techniques
- IEC60945: 2002-08 Maritime navigation and radio communication equipment and systems – General requirements – Methods of testing and required test results
- IEC61162-1: Maritime navigation and radio communication equipment and systems – Digital interfaces – Part 1: Single talker and multiple listeners
- IEC61108-1: GLOBAL NAVIGATION SATELLITE SYSTEMS (GNSS) – Part 1: Global positioning system (GPS) -Receiver equipment - Performance standards, methods of testing and required test results
- EN 301 843-1 v2.1: Electromagnetic compatibility and Radio spectrum Matters (ERM); Electromagnetic Compatibility (EMC) standard for marine radio equipment and services; Part 1: Common technical requirements
- EN 50383: 2002 Basic standard for calculation and measurement of electromagnetic field strength and SAR related to human exposure from radio base stations and fixed terminal stations for wireless telecommunications system (110MHz – 40GHz)
- EN60950-1:2006 Information technology equipment – Safety – Part 1: General requirements

10. SPEC / Technical Data

Parameter	Value
Dimensions	206mm x 150mm x 30mm
Weight	715 gram
Power	DC (12V or 24 V)
	Average power consumption 3,7W@12DVC
	Peak current rating 2A
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
External signal source possibility	For "easyCPA" signal sounder, 200mA at the input voltage (12v or 24V) of the easyRX
	Two separate receivers (One receiver for AIS channel 1 and the other for AIS channel 2).

Parameter	Value
AIS1: 161.975 MHz AIS2: 162.025 MHz	Frequency: 156.025 to 162.025 MHz in 25 kHz steps
DSC	DSC channel 70 reception for AIS channel management is implemented on time sharing basis.
Output Power	33dBm ± 1.5 dB
Channel Bandwidth	25kHz
Channel Step	25kHz
Modulation Modes	25kHz GMSK (AIS, TX and RX)
	25kHz AFSK (DSC, RX only)
Bit rate	9600 b/s ± 50 ppm (GMSK)
	1200 b/s ± 30 ppm (FSK)
RX Sensitivity	Sensitivity – 107dBm 25kHz (Message Error Rate 20%)
	Co-Channel 10dB
	Adjacent Channel 70dB
	IMD 65dB
	Blocking 84dB
Environmental	IEC 60945
	Operating Temperature: -25°C to +55°C
	IEC 62287, IP54 (Under deck use)
Indicators	CPA, Error, safety message, warning, silent, AIS RX, o.k.

Parameter	Value
AIS-Software version:	2.2.x
Compass safe distance to standard magnetic compass	0,80m

11. CONTACT AND SUPPORT INFORMATION

Although WEATHERDOCK strives for accuracy in all its publications; this material may contain errors or omissions, and is subject to change without prior notice. WEATHERDOCK shall not be made liable for any specific, indirect, incidental or consequential damages as a result of its use. WEATHERDOCK components may only be used in safety of life devices or 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.

Please see also our WEATHERDOCK Website: www.easyAIS.com

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Sigmundstraße 180
90431 Nürnberg
Tel: +49 [0] 911-376638-30
support@weatherdock.de

12. LICENSEE AGREEMENT

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

PLEASE READ THIS AGREEMENT CAREFULLY.

Weatherdock grants you a limited license to use the software embedded in this device (the "Software") in binary executable form in the normal operation of the product. Title, ownership rights, and intellectual property rights in and to the Software remain in Weatherdock AG. You acknowledge that the Software is the property of Weatherdock and is protected under the German copyright Laws and international copyright treaties. You further acknowledge that the structure, organization and code of the software are valuable trade secrets of Weatherdock and that the Software in source code remains a valuable trade secret of Weatherdock AG. You agree not to decompile, modify, reverse assemble, reverse engineer or reduce to human readable form the Software or any part thereof or create any derivate works based on the software. You agree not to export or re/export the software to any country.

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.

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 EasyRX and/or/or easySPLIT or both in a boat, it is the sole responsibility of the owner/operator of the EasyRX to secure the easyRX 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 EasyRX to the exclusion of safe operating practices.

SOME VESSELS DO NOT CARRY AIS.

IT IS IMPORTANT AT ALL TIME TO KEEP A PROPER LOOKOUT.

THE “easyRX” IS NOT A SUBSTITUTE FOR GOOD SEAMANSHIP

14. INDEX

ENGLISH