

Manual

easyTRX2S – series
Class B AIS CS Transceiver

Stand 2.3





PRODUCED BY **weather**
dock 
EXCELLENCE IN RADIO TECHNOLOGIES

General Warning

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. 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.

THE EASY TRX2S 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 for Class B transmitter easyTRX2S

IMPORTANT INFORMATION:

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 CLASS B UNIT IS INSTALLED MUST THEREFORE POSSESS A CURRENT VHF RADIOTELEPHONE LICENSE FOR THE AIS CLASS B UNIT 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 OUR POLICY OF CONTINUAL DEVELOPMENT AND PRODUCT IMPROVEMENT THE EASYTRX2S HARDWARE AND SOFTWARE MAY BE UPGRADED FROM TIME TO TIME AND FUTURE VERSIONS OF THE EASYTRX2S 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.

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 DEVICE FROM THE EASYTRX2S PRODUCT LINE 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 EASYTRX2S OR ITS DERIVATIVES 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.**

THIS SOFTWARE USES COMPONENTS AND SOURCE CODE DEVELOPED BY OTHER COMPANIES OR GROUPS.

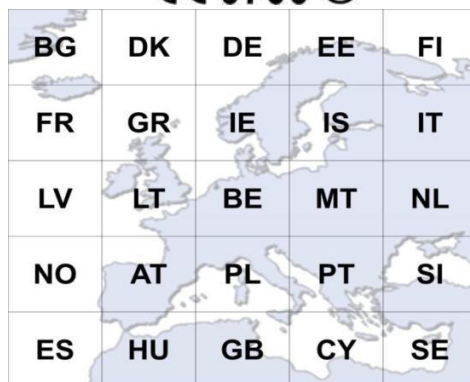
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CE 0700 !



Responsible authority

Please find the official form you need for registration at the Federal Network Agency for the use of an easyTRX25 Transceiver unit in Germany as a PDF file for print out on the enclosed CD.

License number BSH:

BSH/46162/4320939/10

Bundesamt für Seeschifffahrt und Hydrographie (BSH)
Bernhard-Nocht-Strasse 78
D-20359 Hamburg

System requirements

The easy TRX2S programming application is designed to operate with Microsoft Windows® 2000 (SP 3), XP (SP 2), Vista and Win 7/10. Recommended minimum system requirements are:

- Microsoft Windows® 2000 SP3 or Microsoft Windows® XP SP2
- Display resolution of at least 1024 x 768
- At least one USB port

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1 What is AIS – In a nutshell

Substantial investment over the last few years has resulted in the fact that transport safety systems in coastal waters are considered to be the most modern worldwide. The introduction of AIS technology by the International Maritime Organization (IMO) will contribute to the currently available traffic information and thus improve navigation safety.

This data is exchanged automatically and in short intervals between AIS devices via specific VHF transmitters and receivers.

The VHF transmitting unit transmits the data telegram via one of two internationally defined AIS radio frequencies. One of the characteristics of AIS technology compared to other radio services is the automatic organization of several AIS devices on just one radio frequency without disturbing each other.

This is achieved by the SOTDMA transmission method („Self Organizing Time Division Multiple Access“).

The data is transmitted within one or more time-slots via the two radio channels which are reserved for AIS devices. Each device generates its own transmission schedule based on the observed past data traffic and the knowledge about future actions of other AIS devices within radio range. In this respect, the necessary time slots needed for the transmission are occupied. The transmitted data packets are received by every ship within radio range, which is also equipped with such a device to ensure the transmission of the above-stated data. The dynamic ship data is transmitted quite frequently compared to the static and journey-related data, which is only sent at minute intervals. The transmission of data telegrams happens automatically, in short time intervals, depending on the situation, i.e. speed and current maneuver situation. For example, if a commercial ship lies at anchor it only sends a message every three minutes, if it is moving and putting about at the same time it sends at two second intervals.

1.1 Existing AIS standards?

The "Class A" AIS service is described in the document ITU-R M.1371-1 where R stands for „Recommendation“.

This „standard document“ is valid for AIS data transfer with specifications for the so-called „Class A“ and „Class B“ Service.

As mentioned previously, "Class A" Transceivers operate with the SO-called SOTDMA method.

The use of „**Class A**“ Transceivers is mandatory in the **professional shipping** as they are obliged to report.

Operation of „Class B“ Transceivers is described in document EN62287. The observation of the properties specified in the standards is obligatory for „Class B“ Transceivers.

„**Class B**“ Transceivers are not mandatory and are commonly used in the **leisure boat area**.

The devices of the product line easyTRX2S are „Class B“ Transceivers.

1.2 content of the "Class A" standard: EN61993-2-2002

The telegram of a „Class A“ transmission 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)

- Type of vessel
- 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 with regard to threatening collisions. Therefore this block of information is transmitted in a compulsory way, depending on the vessels movement. The following table shows the mandatory repetition rate of the "Class A" Transceiver 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

The static data such as information regarding the journey is dispersed every 6 minutes.

This data is sent in turns according to the stipulated period to the one (161.975 MHz) and subsequently to the other channel (162.025MHz).

As mentioned previously, the „Class A“ Transmitter operates with the so-called SOTDMA method (self-organized time division multiple access).

This is a „self-organized time slot allocation for telegrams, which means that the ship listens to the radio traffic and determines the information contained in these telegrams and on which “time slot” the own transmitter may transmit without overriding other telegrams.

The complex SOTDMA method is replaced by a technically simpler method CSTDMA for Class B-Transponders.

CSTDMA means „Carrier Sense Time Division Multiple Access“

At the beginning of a timeslot the **Class B device** checks **whether** the **channel is occupied** or not and then **sends its message**. This method is best described as “listen-before-talk-method”. A “Class B” Transmitter simply listens and then transmits on a free time slot without checking this in detail once again or coordinating with the other participants.

The following table shows the stipulated repetition rate of a „Class B” Transceiver depending on the speed of the ship.

Dynamic information:

boats at < 2 kn:	3 minutes
boats at > 2 kn:	30 seconds

The static data such as the information regarding the journey is dispersed every 6 minutes. (as in „Class A”)

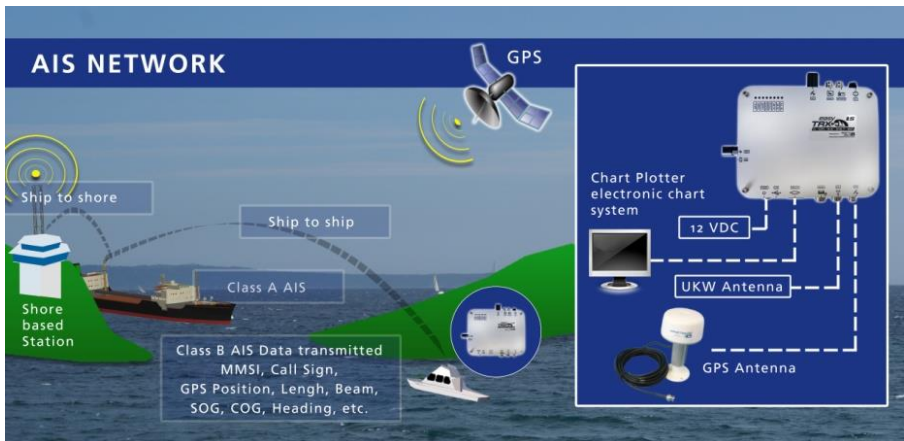
This data is sent in turns according to the stipulated period to the one (161.975 MHz) and subsequently to the other channel (162.025MHz).

The above-mentioned repetition rates apply to the standard operation.

The „Class B” Transmitter does not have its own automatism to change the repetition rate independently, except for the above-stated values.

Authorities may in exceptional cases reduce the repetition rate to 5 seconds or refuse admittance of the „Class B” to the SOTDMA method (e.g. in the case of heavy traffic) within their responsibility.

The above-stated information does not raise a claim for completeness of contents and infallibility but rather serve as an introduction to this issue. For more information please contact the Bundesamt für Seeschifffahrt und Hydrografie (Federal Maritime and Hydrographic Agency) in Hamburg.



Picture 1-AIS network

2 Scope of delivery

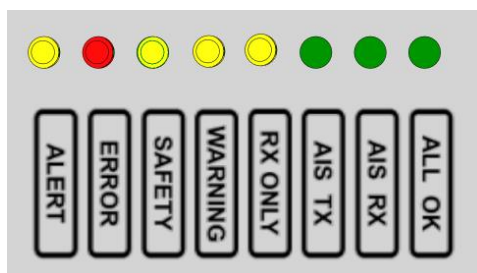
Included in delivery are:

- The corresponding device of the easyTRX2.5 product line
- Connection cable for power supply, Length: 1,5m
- Data transfer and external switches cable, Length: 2,4m
- User's manual
- Software installation CD for programming of ship-specific data
- Wi-Fi antenna for the devices easyTRX2.5-WiFi & easyTRX2.5-IS-WiFi
- USB cable, Length: 1,5m
- Optional accessories
 - WLAN antenna (only on WiFi versions)

- IEC-BNC cable (only on iDVBT versions), #B035
- Optional, not included: Car radio-BNC cable, #B033
- Optional, not included: Splitter cable (PL259-Plug), #R08278
- Optional, not included: GPS antenna #A029
- Optional, not included: VHF/GPS antenna #A028
- Optional, not included: external transducer easyCPA³, #A056
- Adaptor BNC/TNC for GPS antenna
- 4x Mounting screws M4x15, Philips, lens head

3 Commissioning - Operating

After the easyTRX2S Transceiver is connected according point 3 to the 12V supply and is switched on, all eight visible LED on the top of the unit will illuminate once for a period of one second. Subsequently every 2nd LED flashes for one second and after that the remaining LED will be illuminated for one second.

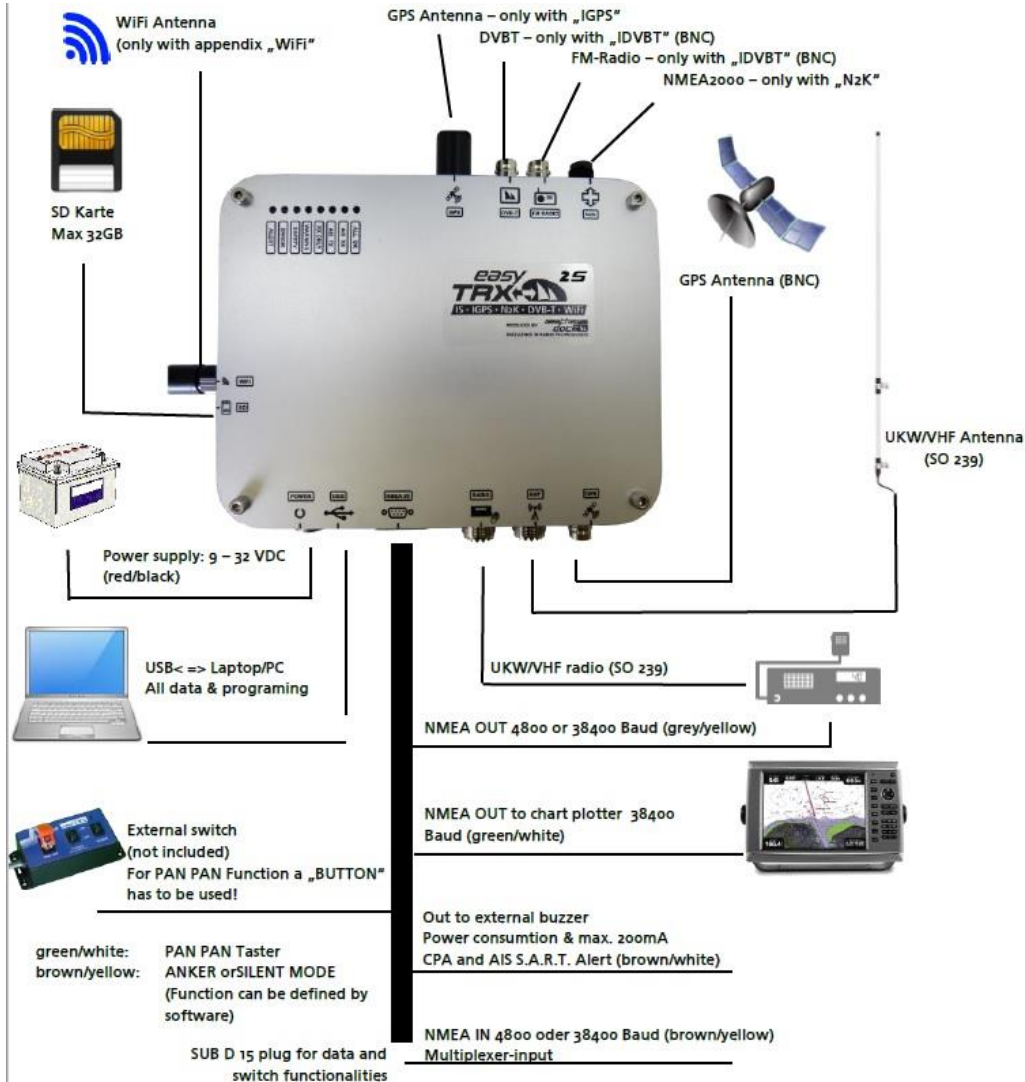


Picture 2-LED colours

- **ALERT**
This LED flashes if a ship enters the defined CPA (Closest point of approach) radius, an AIS S.A.R.T alert is received or your anchor alarm is activated
- **ERROR**
This LED is illuminated if there is an error. The cause may be the antenna or e.g. a hardware error. Use the Programming tool for more precise error analysis.

- **SAFETY.**
This LED flashes if a safety message is transmitted.
- **WARNING**
The warning LED is on if the GPS data is not received yet.
- **RX ONLY**
This LED is on if the device is in receive only mode („Silent Mode“) or does not have a GPS fix already.
- **AIS TX**
This LED flashes each time when the device has sent an AIS message.
- **AIS RX**
This LED flashes each time when an AIS message is received.
- **ALL OK**
This LED is on if all functions of the AIS transceiver work properly.

4 Connecting suggestions



5 Cable assignment

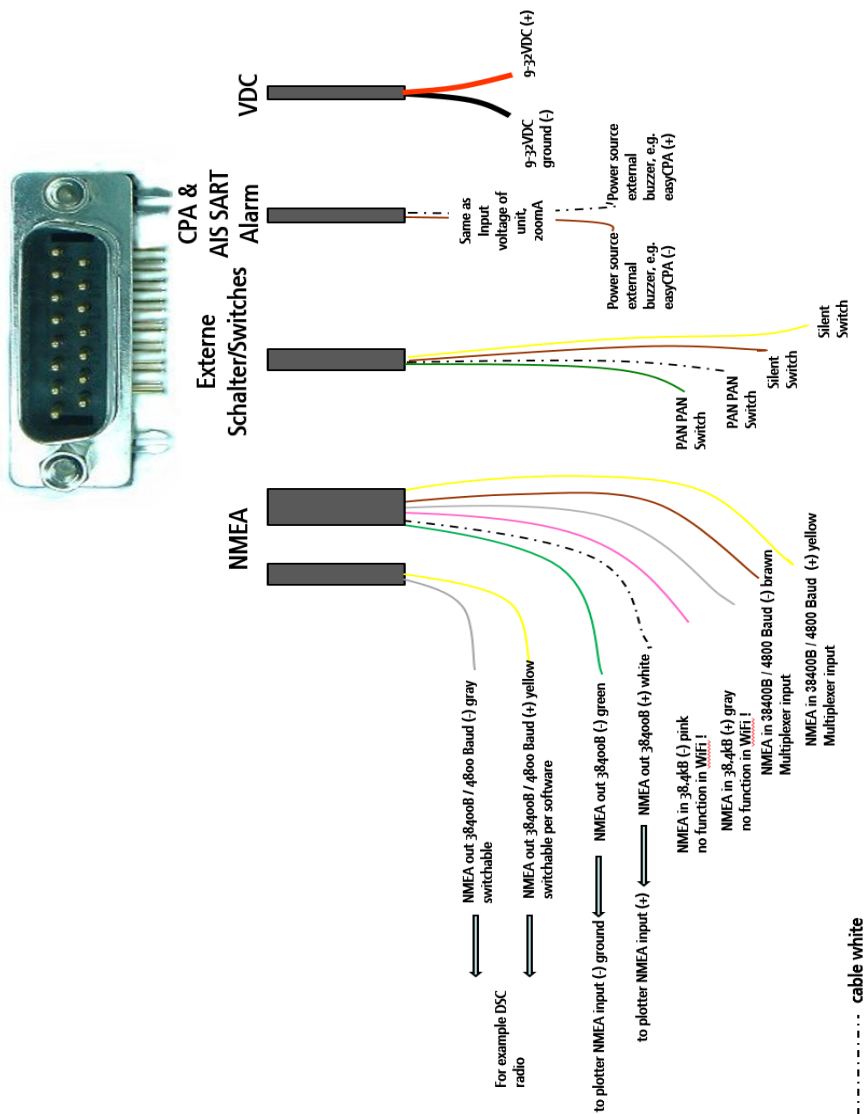
Alternative cable colours – SUB D 15 connection cable

Number of wires	Wire group	↓	↓	Functionality	Pin at SUB-D connector
		Wire color variant 1	Wire color variant 2		
6	RS232 to Plotter	Green	Green	NMEA out 38400 (-)	15
	RS232 to Plotter	White	White	NMEA out 38400 (+)	7
	RS232 ()	Pink	Red	NMEA in 38400 (-)	10
	RS232 ()	Grey	Black	NMEA in 38400 (+)	2
	RS232 MUX	Brown	Blue	NMEA in 4800, 38400 (-)	11
	RS232 MUX	Yellow	Yellow	NMEA in 4800, 38400 (+)	3
4	Externe Schalter	Green	Green	PAN PAN switch (-)	13
	Externe Schalter	White	Pink	PAN PAN switch (+)	5
	External switches	Brown	Black	Silent switch (-)	12
	External switches	Yellow	Red	Silent switch (+)	4
2	CPA / SART / Anchor	Brown	Black	CPA Alarm (-)	14
	CPA / SART / Anchor	White	Red	CPA Alarm (+)	6
2	RS232 to Plotter	Grey	Grey	NMEA Ausgang 4800, 38400 (-)	9
	RS232 to Plotter	Yellow	Yellow	NMEA Ausgang 4800, 38400 (+)	1

Note:


Have a look into the package of your unit.

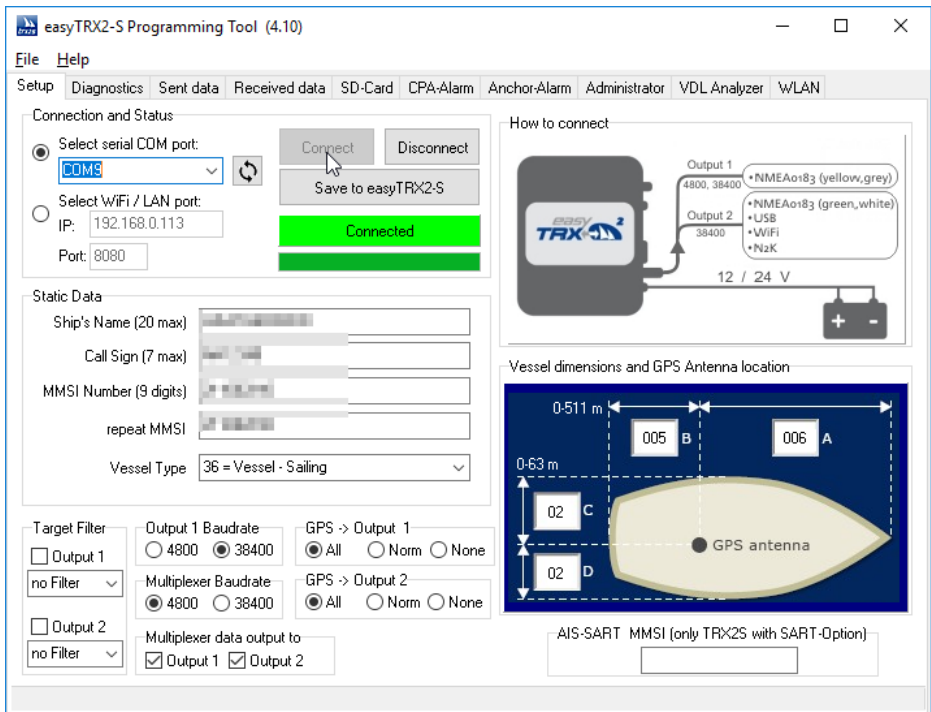
If you have a **blue** wire on one of the cable packages, you have Variant 2.



6 Programming

6.1 Tab: Static data

- Install the PC software from the CD.
If you don't have this CD anymore you also can download all necessary files from our webpage:
 - Visit www.easyais.com
 - Go to Information > Download > Software / Driver
 - Go there to "Software for TRX2S and TRX2"
 - Download the latest Programming-Tool
- Connect the easyTRX2S to your PC with the supplied USB cable
 - If you have troubles installing the USB driver, see above to reach also the page where you find the link to for it.
- Connect the easyTRX2S device to a power supply 9,6-31,2VDC
- Start the easyTRX2S Programming Software.
- Select the serial COM port (this COM Port is generated from the USB port of the easyTRX2S)
- Click on "Connect" button
- You should see the green "Connected" field.

-
- If you can't connect or there is no COM Ports available try to reinstall the USB driver from the CD
or try to use another USB-/COM-Port
- Enter all ship data and click on "Save to easyTRX2-S".



Picture 3-Static data

Please keep in mind that the MMSI can only be entered once. Please contact your service partner if the MMSI was entered wrongly or if you are required to enter another MMSI.

The NMEA port of the Class B Transponder is preset to 38400 baud by default. You can change the output 1 baud rate (yellow,grey), if your chart plotter supports 4800 baud only.

Another option is the output of GPS information. The devices of the easyTRX2S product line can output the GPS data of the integrated receiver

via NMEA or USB port. This is useful if your chart plotter does not have its own GPS. A minimum output of GPS data (RMC, GGA) is set as a standard feature by default. It is possible to disable the GPS output or to set it to maximum information (RMC, GGA, GSV, VTG, GLL and GSA), if the chart plotter requires.

Note (valid for –WiFi units):

The switchable output port is also used internally for the WiFi module.

If you want to change it to 4800 baud you cannot use the full function of WiFi. In this case the unit can send data to your phone/tablet/PC.

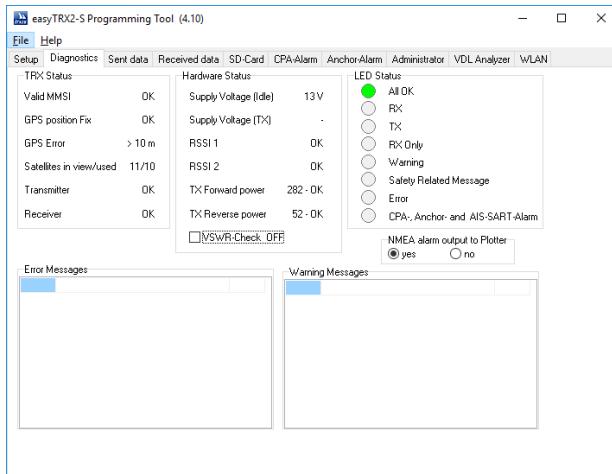
The other way, send commands e.g. asking MMSI number by our mobile application “easyTRX2S Programming Tool” available for iOS and Android, won’t work.

If you want to configure your TRX2S unit by WiFi please do not change the output baudrate to 4800 for this step. Of course you can do it later within the Programming tool by USB on a Windows PC.

6.2 Tab: Diagnostics

On the „Diagnostics“ page you can get a lot of information.

If a warning or error appears this page is the first you should look at.



Picture 4-Diagnostic

The box „**TRX Status**“ gives you information about:

- **Valid MMSI:** Once a valid MMSI was entered it, "OK" Status will be shown. A valid MMSI is required for transmitting data.
- **"GPS position fix":** If your GPS is working properly, status "OK" will be shown.
- **"GPS Error":** Value is always >10 m. Used as a hint regarding the accuracy class of the internal GPS. Normally the GPS of the TRX2S will be >10m.
- **"Satellites in view/used":** Shows the number of received GPS satellites and how many of them are used for position fixing.
If you have a unit with "iGPS" you can check here if your mounting position is good to receive the GPS signals.
- **"Transmitter":** Once the transponder has sent data for the first time, the status changes from "Standby" to "OK". If there is any fault in the device, "Error" is displayed and the device does not work properly anymore (needs repair). The box "Error Message" gives information about the error.
- **"Receiver":** When the device has received AIS data for the first time after switch-on the status changes from "Standby" to "OK". If there is any fault in the device, "Error" is displayed and the device does not work properly anymore (needs repair). The box "Error Message" gives information about the error.

The "**Hardware Status**" displays the value of operating voltage. Important is the value stated in "Supply Voltage (TX)". This is the voltage level during transmission. Here the easyTRX2S device is shortly drawing approx. 2 A. If the cables are too thin and very long, the voltage may drop down well below the "Idle"-level (resting value) which might guide to a lower radiation performance. In this case you should consider using cables with larger copper diameter and check all contact connections, respectively.

The values RSSI1 and RSSI2 give information, if there are any interferers on the two AIS frequencies. This may be caused by e. g. a faulty electrical device on board. If there are no interferers the status is "OK".

"TX Forward Power, TX Reverse Power" are OK if the connected VHF antenna is working properly. If the antenna has short circuited or the antenna cable is disconnected "Error" is displayed.

The value of forward power should be always three times bigger then the reverse power.

TX Forward power	241 - OK
TX Reverse power	26 - OK

In this picture above the reverse power is only a 10th of the forward power which means that most of the signal is fully send to the antenna.

If the reverse power is too high (like in the picture below), you will see the "VSWR exceeds limit" error.

TX Forward power	317 - Error
TX Reverse power	236 - Error

In this case the antenna is not connected and most of the power is reflected.

Please check your connectors and wires if this failure appears.

Also through-deck mounting sockets could effect this error if the quality is not good here.

The **LED display** of an easyTRX2S device is also displayed in the software.

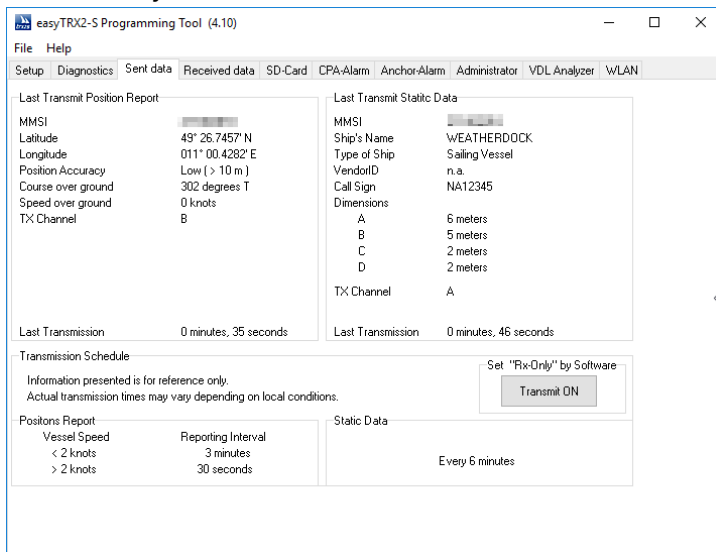
If the check routine of the easyTRX2S device noticed any fault, or if there is a warning, a short notice will be given in the respective tables. The easyTRX2S executes a self-test every 30 seconds and displays the result. As a result each error or warning report has got a countdown of 1 minute. This

means the report disappears from the table if the error or warning message is not received once again within 1 minute. Thus the error or warning no longer exists.

6.3 Tab: Sent data

The tab "Sent Data" gives information about the last AIS data sent by the easyTRX2S Transceiver.

This is on the one hand the "Position Report" (AIS-Message No. 18), which transmits MMSI, position, speed and bearing. Below you can see how much time elapsed since the latest transmission. This can be up to 3 minutes, if your speed is less than 2 kn or 30 seconds if your speed is faster. On the other hand there is the "Static Data Report" (AIS-Message No. 24), which includes MMSI, ship's name, call sign, ship's dimensions and vessel type. This message is sent every 6 minutes.



Picture 5-Sent data

Note:

The time of last transmission already starts to count up if you start the programming tool. If you can see times higher than >3/6min please check also if you are connected successfully within the Static data page.

6.4 Tab: Received 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 show and blank out columns.

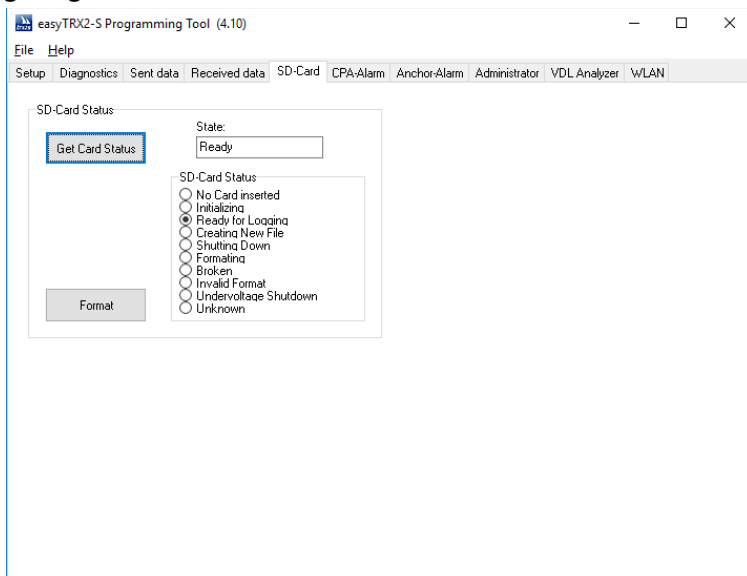
As the static data report is sent every 6 minutes you have to wait for approx. 15 minutes to see ship names referring to the listed AIS data. If AIS targets are too far away the reception might be uncertain due to the wide range. It is entirely possible that data is received delayed or not received at all.

	MMSI	Ship Name	Call Sign	SOG	COG	Latitude	Longitude	Last Report	Bearing	Range
B	877223831	EE-TEST 6.588 GER	N.A.	0 kn	20°	49° 26.7298' N	011° 00.3994' E	0.33	231°	0.0 nm
A	244670076	SALVE	PH6505	5 kn	314°	49° 27.9623' N	010° 57.4390' E	0.26	302°	2.3 nm
B	877224948	VMSTRACK TEST 4948	V.6.588	0 kn	327°	49° 26.7301' N	011° 00.4438' E	0.00	152°	0.0 nm
A	244670573	MODENA	PD2213	5 kn	122°	49° 25.4206' N	011° 02.1100' E	0.06	141°	1.7 nm
A	211181050	EMANUEL IV	DA4153	0 kn	199°	49° 24.8902' N	011° 03.5023' E	0.09	133°	2.7 nm
B	211562370	RESCATOR	DH6274	0 kn	186°	49° 25.8970' N	011° 00.6667' E	0.28	170°	0.9 nm
A	244660513			6 kn	137°	49° 28.1956' N	010° 57.0487' E	0.04	303°	2.6 nm

Picture 6-Received data

6.5 Tab: SD-Card

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.



Picture 7-SD card

Sometimes it is necessary to click on "Format" several times as certain SD cards take more time than the easyTRX2S expects. We recommend SD-Cards from "SanDisk®" for best compatibility and reliability.

The easyTRX2S devices format the SD card in FAT format. If the card was already formatted in a PC it always needs to be formatted by the easyTRX2S again. The reason for that is that the easyTRX2S device sets up a file structure which permits to save the AIS and GPS data on the card in real time.

The easyTRX2S (-IS) is using the FAT format. If the SD Card has got another format, you have to format it again with the easyTRX2S (-IS). It's because the device is storing a special set of files, which enable real time storing of AIS and GPS data.

Once formatted, you can remove the SD card whenever you want. No data will be lost. In the case of a voltage drop the latest received data is still recorded. There is no data loss caused by power sag.

Corresponding markings are displayed in the status box.

The easyTRX2S works with SD cards capacity up to 32GB!

The internal system records data up to a volume of 2GB. This will be totally enough to store AIS data of one year in a high traffic area. The capacity of the SD Card is not important. Just because 2GB cards become hard to find, we decided to use cards up to 32GB.

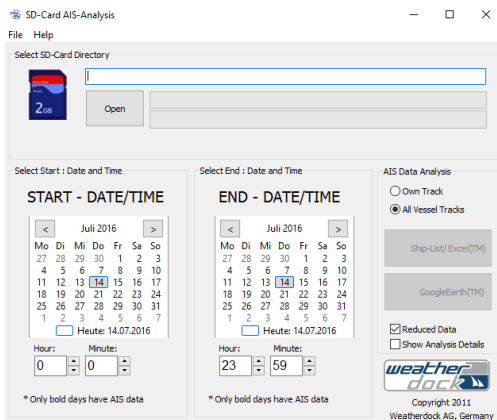
Read out data from SD card

To read the data packages from your SD card you have to remove it from your TRX2S and put it into your SD card reader of your PC.

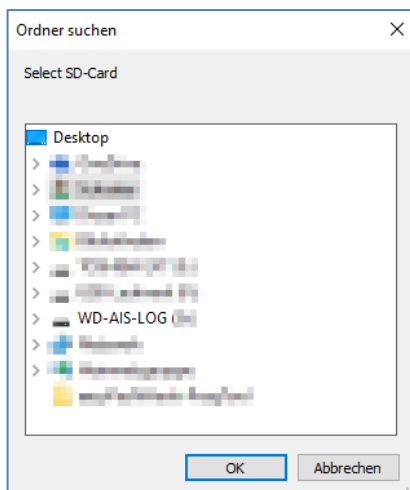
- Start the analysis tool.

It is contained on your CD or available on our webpage for a free download:

<https://www.easyais.com/en/article/software-for-trx2s-and-trx2/>



- Select your SD card by clicking "Open".



- Select Start/End Date/Time of your Track you want to see within Google Earth™.

Note: Only fields with bold fonts contain data!

Select Start : Date and Time
START - DATE/TIME

<

Oktober 2015

>

Mo	Di	Mi	Do	Fr	Sa	So
28	29	30	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	1
2	3	4	5	6	7	8

☐ Heute: 14.07.2016

Hour:

Minute:

13

27

* Only bold days have AIS data

Select End : Date and Time
END - DATE/TIME

<

Oktober 2015

>

Mo	Di	Mi	Do	Fr	Sa	So
28	29	30	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	1
2	3	4	5	6	7	8

☐ Heute: 14.07.2016

Hour:

Minute:

13

28

* Only bold days have AIS data

The picture above shows as example data on the 20th of October 2015.

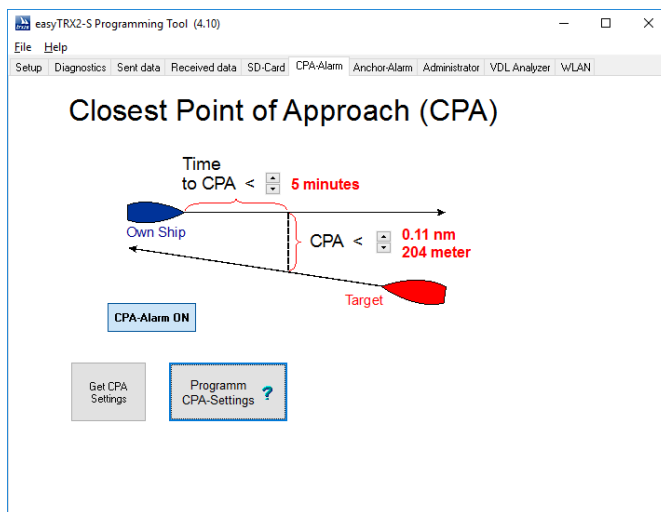
- By clicking on the GoogleEarth™ icon we start the tool which generates a file for GoogleEarth™ and starts it.

Note:

Please do not select a too long Time of your Track as your PC may take also too long to work with such a huge quantity of information.

6.6 Tab: CPA-Alarm

The "CPA Alert" tab gives the possibility to configure parameters which trigger an alarm.



Picture 8-CPA alert

CPA means "Closest Point of Approach" to a ship transmitting its position, bearing and speed via AIS.

The easyTRX2S 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 ship enters the 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 clicking on the arrows and transfer it to the easyTRX2S by clicking on "Program". You can check the current settings of the transponder by clicking on "Read". The settings remain in the device i.e. it is not necessary to program it again after restart. The CPA alarm can be disabled by pressing the button "CPA-Alarm ON". Here as well, the settings done with "Program" are applied to the easyTRX2S and checked with "Read".

CAUTION:

Only vessels, which do have a properly working AIS aboard, are able to trigger the CPA alert in the easyTRX2S Transceiver!! Therefore you should always watch out for other vessels which are on collision course!!!

When a CPA alert occurs, two actions are starting:

- LED CPA alert is flashing for a few seconds
- The connection cables (white and brown) are getting the supply voltage in time with the CPA LED.

You may now connect an acoustic signal generator to these wires (e.g. the "easyCPA³" (A056), available as accessory).

This means you have got a standalone CPA alert even if the plotter is disconnected / switched off.

Another alarm occurs if an AIS-SART (AIS-Search-and-Rescue-Transmitter) (e.g. the easyRESCUE, available as accessory) is received. This emergency transmitter has the effect that the easyTRX2S or other devices of this product line activate the CPA alarm LED and the CPA alarm line as a Morse "SOS" several times.

This AIS-SART alert cannot be disabled in contrast to the CPA alert!

6.7 Tab: Anchor-Alarm

Another alarm is the co-called anchor alert.

It uses the internal GPS of the easyTRX2S to report the leaving of the ship from the anchor position. As with the CPA alert the LED flashes and the supply voltage is impressed to the corresponding pair of conductors. We recommend the accessory "easyCPA³" (A056) which generates a loud alarm sound (approx. 95 decibel).

If the ship is at anchor it is possible to save the anchor position via switch or via this software. In that case the anchor alert is activated. The LED flashes or alarm sound rings twice briefly for confirmation.

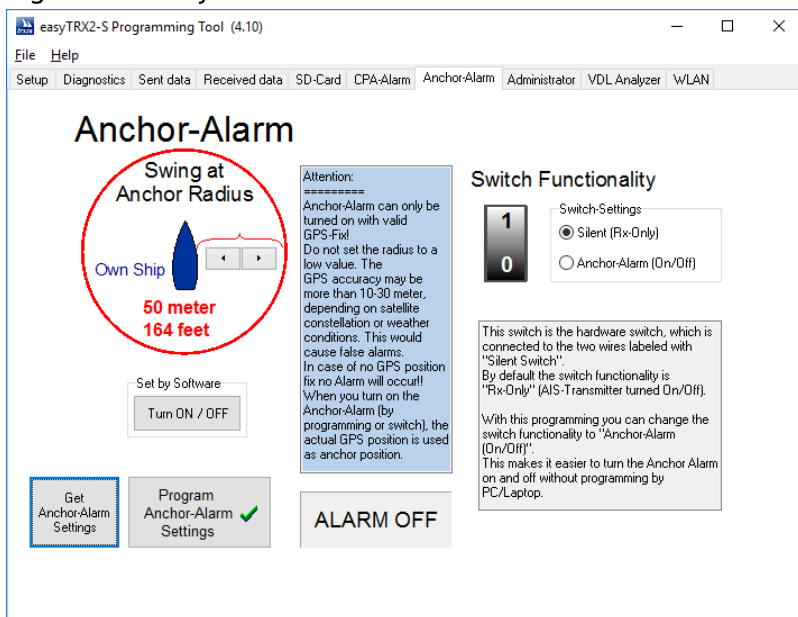
Please keep in mind that the ship may swing around the anchor position and thus trigger a false alarm. It must also be observed that the GPS position accuracy might vary for up to 10 m (depending on satellite-constellation or weather conditions). In case that the GPS receiver has got

no position fix because of cloud coverage, an acoustic alert is also triggered. As a result please do not choose a too small alerting radius.

The hardware switch (using CPA Alarm) can set the easyTRX2S into "RX-Only" mode. The easyTRX2S will not send until the switch is turned off again. The hardware switch can be reconfigured from Silent ("RX-ONLY" mode) into Anchor-Alarm by the programming tool.

This makes the use of the anchor alert easier and more practicable as you do not need a PC or Laptop for activation.

In the event of an anchor alert the LED flashes and the „easyCPA3“ is beeping continuously.



Picture 9-Anchor alarm

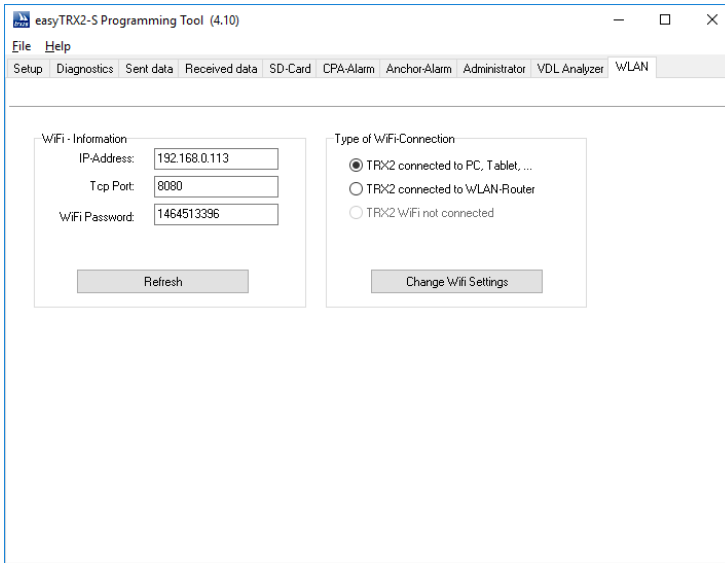
Spezifikation CPA-/Anchor-Alarm(Brown-/white+):

Voltage of buzzer = supply voltage of easyTRX2S(12-24VDC),

max. current = 0.2A

6.8 Tab: WLAN

Available on devices with **“-WiFi-”** in name.



You can see this window every time you connect to your TRX2S.
If you don't have WiFi you can ignore this window
and go to the next chapter.

All these units do have a built-in WLAN module. This creates a “hotspot” on which PC, laptop, iPad, iPhone, Android smartphones or tablets can be connected to.

All data which are forwarded to chart plotter will be forwarded 1:1 to the used mobile device.

6.8.1 Connection of WiFi-Antenna

Fix the contained WiFi antenna to the RP-SMA plug on the units left side.



Picture 10-WiFi antenna

6.8.2 More WiFi connections

Without any necessary changes you already got this functionality out of the box. This means that up to 40 users are able to receive AIS, GPS data wireless through the own WiFi network of your easyTRX2S unit. As a result you can, for example, dial in to the WiFi network with a notebook, iPad and tablet and operate a navigation software with these devices.

- In order to establish a connection, please connect the easyTRX2 to the on-board electrical system.
- Search for wireless networks in your proximity
- Establish a connection to the network easyTRX2_XXXXX. (Please find the password for the network at the bottom of your device.)
- Now you can access the AIS data over a TCP/IP connection. (TCP/IP settings: IP 192.168.16.254 and Port 8080)

6.8.3 Internet and AIS data simultaneously

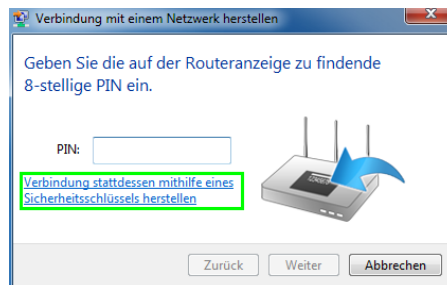
You may now program the easyTRX2 in such way that it connects to your home router/ the port router and transmits its data via this respective router. This means that all clients which are connected to the router, can surf the Internet and receive the data from the TRX2-S at the same time.

This function is absolutely necessary in some navigation software because the charts and weather information are downloaded from the Internet.

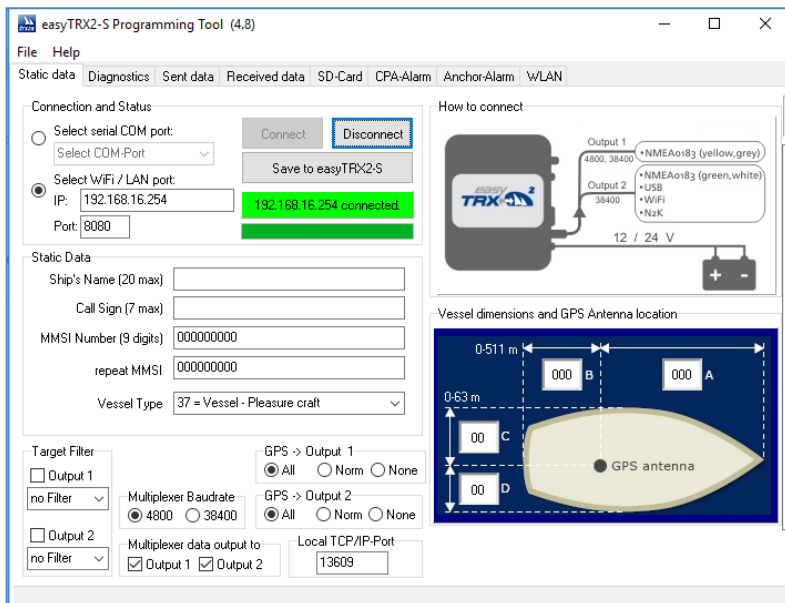
- In order to connect the easyTRX2S with your router, connect the easyTRX2S to the on-board electrical system.
- Insert the CD, which is included in delivery, into the CD drive of your PC and install the Programming Tool.
- If you do not have the CD or your Laptop does not have a CD drive anymore, you can download the Programming-Tool from our webpage:
 - o Go to www.easyais.com
 - o Select Information > Downloads > Software / Driver
 - o Select "Software for TRX2S and TRX2"
 - o Now download the Programming-Tool
 - o Open the ZIP file to reach the Setup and follow the instructions.
- Search for wireless networks in your proximity
- Establish a connection to the network easyTRX2_XXXXX.
(Please find the password for the network at the bottom of your device.)

If you get a window which shows you following, just press the blue link to fulfil the complete password.

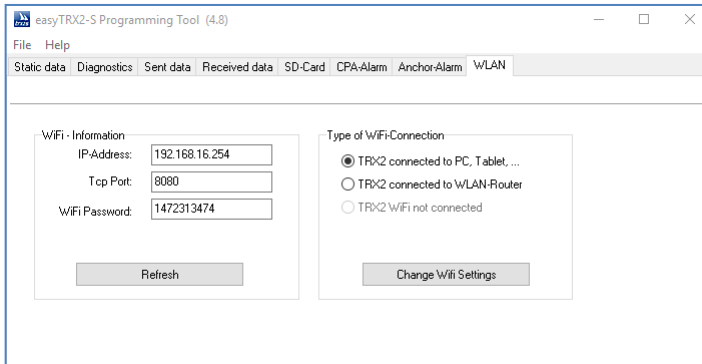
If you see following window, please press the blue link to fill in the complete password.



- Open the Programming Tool and connect via TCP / IP.
In order to do that, choose "Select WiFi / LAN port" fill in IP 192.168.16.258 Port 8080 and press "Connect".



- When the easyTRX2S is fully connected, a "WLAN" tab appears in the upper right corner.
- Select the tab "WLAN". The following entries should be visible:
„IP-Address“ and „WiFi Password“, see picture below.



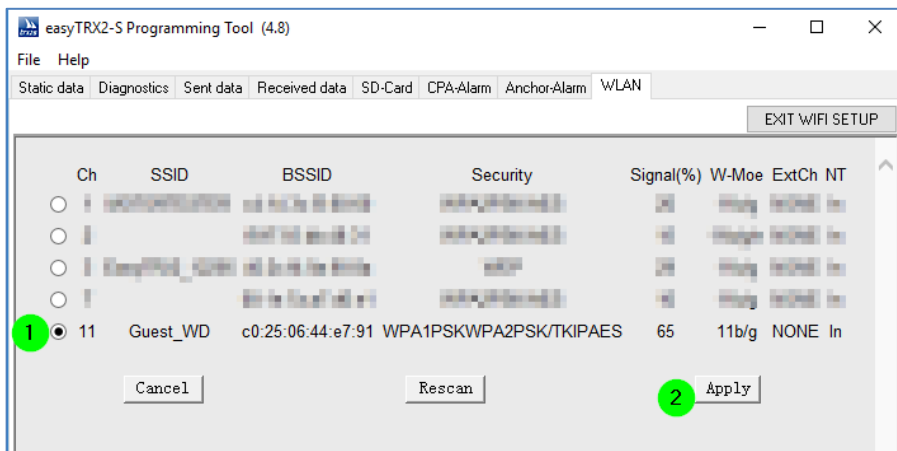
- Before changing the WiFi settings, please remove any LAN cable if you are connected with this.
- Select now the option "TRX2 connected to WLAN-Router" and click on "Change Wifi Settings".



- If you are doing the WiFi setup for the first time, the following window will pop up:



- Enter the name "admin" and the password "admin" and click on OK.
- The next window shows all networks that are available in the proximity of the easyTRX2.5.



- In the next step, select the name of your access point (1) and click on "Apply"(2).

- Just enter the password of your WiFi network(1) in the next window and confirm with "Apply"(2).

Please do not change any other settings on this page!

easyTRX2-S Programming Tool (4.8)

File Help

Static data Diagnostics Sent data Received data SD-Card CPA-Alarm Anchor-Alarm WLAN

EXIT WIFI SETUP

NetMode: WIFI(CLIENT)-SERIAL

SSID: Guest_WD Scan

Encrypt Type: WPA2 AES

Password: 123456789

IP Type: DHCP

	Current	Updated
Serial Configure:	38400,8,n,1	38400,8,n,1
Serial Framing Lenth:	64	64
Serial Framing Timeout:	10 milliseconds	10 milliseconds (< 256, 0 for no timeout)
Network Mode:	server	Server
Remote Server Domain/IP:	192.168.11.245	192.168.11.245
Locale/Remote Port Number:	8080	8080
Network Protocol:	tcp	TCP
Network Timeout:	0 seconds	0 seconds (< 256, 0 for no timeout)

Apply Cancel

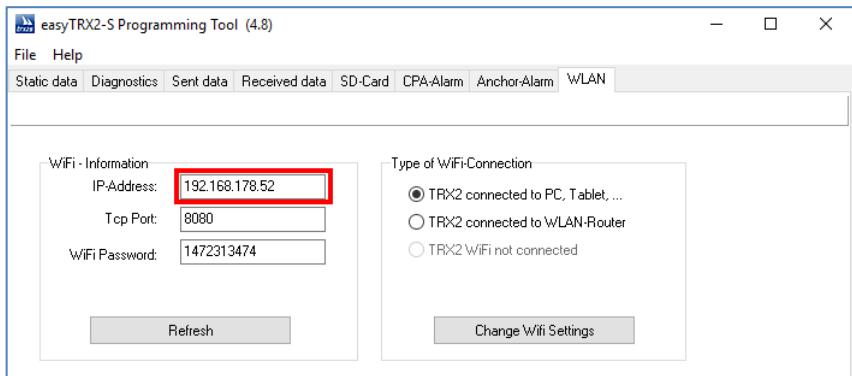
- After clicking on the "Apply" button, please wait (10 to 20 seconds) until the settings have been applied and until the following window pops up:

Trx2_progtool

WIFI Settings Setup Complete!

OK

- Next, you need to connect to your access point. This can be done via LAN or WLAN.
- When the connection has been installed completely, select " TRX2 connected to PC, Tablet, ..." so that the IP of the easyTRX2S can be determined once again. All clients that are connected to the access point can access the data of the easyTR2S-5 over the determined IP and Port 8080.



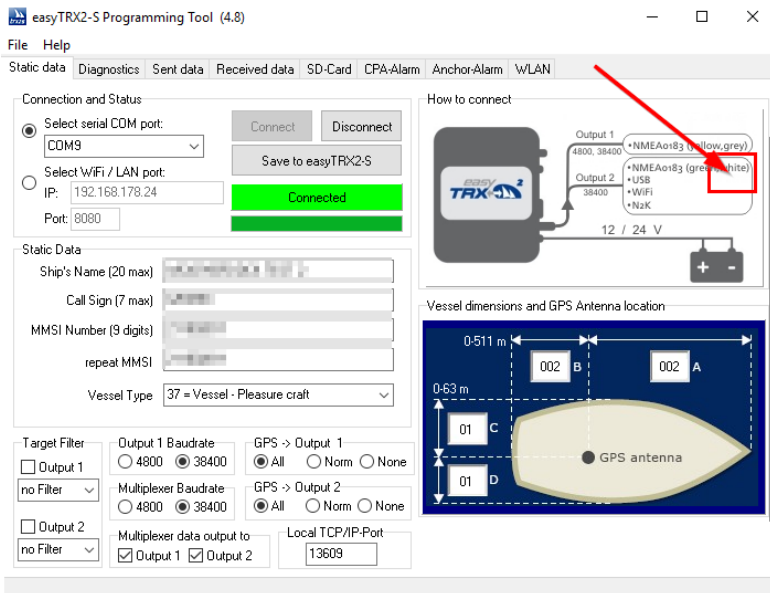
Picture shows IP-Address, this could be different as it is assigned by your router system.

- The WiFi setup is now completed and the Programming Tool can be closed.

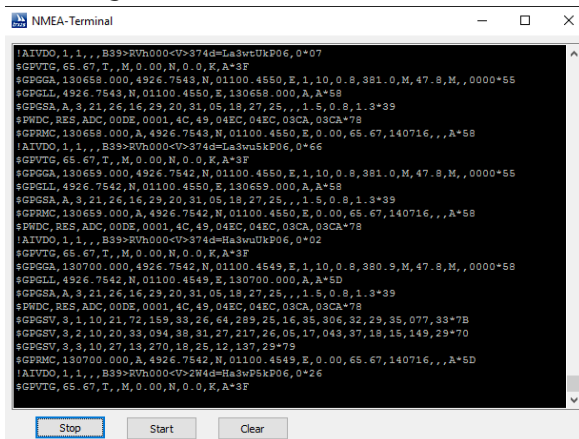
6.8.4 Checking the connection

The programming tool contains a hidden window where you can check the data packages running on the connection.

To open this window click on the below marked area.



After your click into the above marked area you should see the data packages coming in:



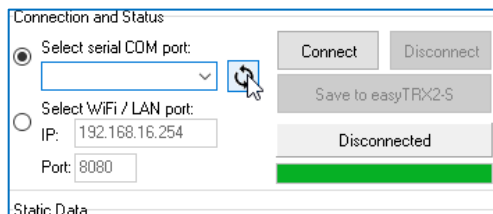
Description of the data records:

- => The GPGSA dataset (SA=satellites active) contains information regarding the PRN numbers of the satellites whose signals are used for determination of the position.
- GPRMC => The GPRMC dataset (RMC = recommended minimum sentence) is a minimum recommendation a GPS receiver should render (will be interpreted by chart plotter)
- GPVTG => The GPVTG dataset contains data regarding speed and direction.
- GPGGA => The GPGGA dataset is containing time, position (including altitude) and quality of the measurement (will be required by some chart plotters or DSC controller)
- GPGLL => The GPGLL dataset is a relic from times when only LORAN-C navigational systems existed and contains the geographical position. So to speak the GPS device emulates the LORAN-C receiver.
- GPGSV => The GPGSV dataset (SV=satellites in view) contains information regarding satellites, which may currently be received as well as information regarding their position, signal strength etc. There may be up to three datasets, as the allowed number of satellites is restricted to four per set (limitation to 82 characters).
- AIVDO => The AIVDO dataset contains your own ship data (AIS data format)
- AIVDM => The AIVDM dataset contains the received AIS data of another ship
- PWDC: Proprietary Weatherdock message used by the programming tool.

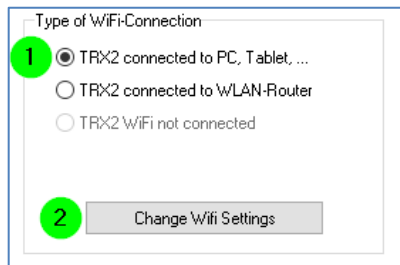
6.8.5 Reset of WiFi settings

If you wish to connect with the easyTRX2S directly or if you do not want to have access to your access point you have the possibility to reset the WiFi settings.

- Connect the easyTRX2 to the on-board electrical system.
 - Connect the easyTRX2S with the USB interface of your PC.
 - Open the Programming Tool and connect via the serial COM port. In order to do that please click on "Select serial COM port" and choose the available COM port. If you have more than one COM port available to choose from, it is usually the one of the best quality. Finally click on "Connect".
- If you cannot see the right COM port, please try to hit the refresh button.

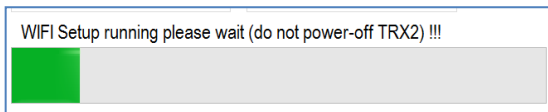


- When the easyTRX2S is fully connected, the "WLAN" tab appears in the upper right corner again.
- Select this tab "WLAN".
- Change the option to "TRX2 connected to PC, Tablet,..." (1) and click on "Change Wifi Settings" (2)

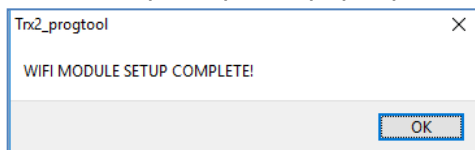


- Wait until the WiFi settings are entirely applied.

- Under no circumstances should you turn off the easyTRX2S and please do not disconnect the USB cable.
- With the progress bar you can monitor the process.



- The process is completed when the "progress bar" disappears and the window "WiFi Setup complete" pops up.

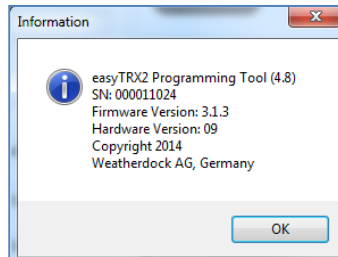


- The settings have been applied and you may now close the Programming Tool.
- Now you should see again a WiFi network with the name of easyTRX2_XXXXX.
- You can connect to it as before by take the password from the bottom of your easyTRX2S unit.
- Again you get all the data by WiFi with IP: 192.168.16.254 and Port 8080.

6.9 Software-Update

Only able by USB connection!

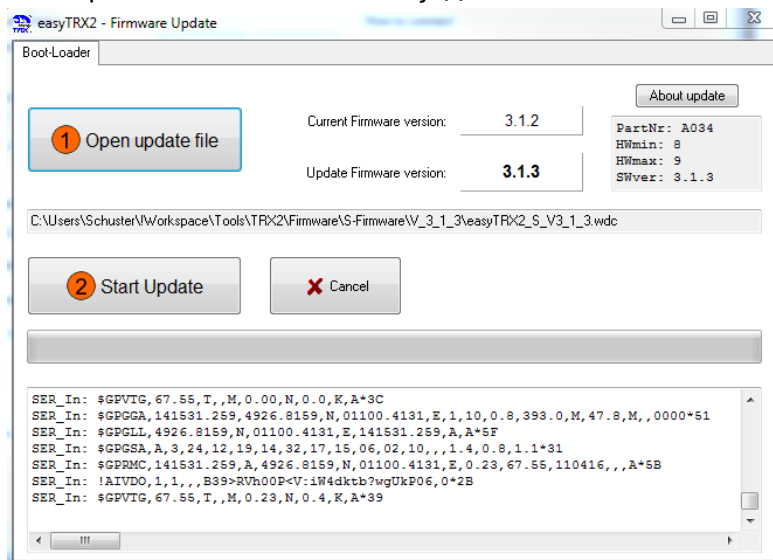
With the menu item File => Update you can update the easyTRX2S software. The latest version is available for download on our web page. Before updating the software, please check which version number is installed in the device. In order to do this you have to "Connect" and to click on the menu item "Help". The following information is displayed:



Picture 11-Information

This is version number 3.3.1.

After having downloaded the file, please click on "File" => "Update" and choose the update "*.wdc" file with key (1):



Picture 12-Firmware update

Here you can also see the existing version number as well as the new version number of the update.

To start the update procedure press key (2). Please make sure that the operating voltage is still on during the update and that the PC does not switch to standby or turns itself off!

Download of latest firmware

- Visit www.easyais.com
- Go to Information > Downloads
- Go to Firmware
- Select here Firmware for "Firmware for easyTRX2-5"
- Press the Download button to get the ZIP-File
- Unpack this ZIP to get the *.wdc file, this is our Firmware

7 IS: integrated Splitter

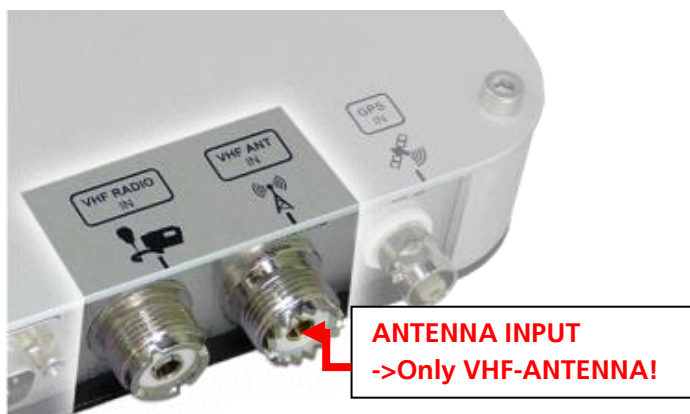
The easy TRX2S devices with the suffix „-IS-“ have an antenna splitter integrated. This splitter checks whether the output comes from the VHF device or from the Class B AIS Transmitter to the antenna. If this is the case, the other devices are disconnected very fast. By doing so the output is sent to the antenna and not to the other devices.

CAUTION:

IT IS NOT ALLOWED TO CONNECT A RADIO DEVICE TO THE ANTENNA INPUT PORT (RIGHT SO239-CONNECTOR) – THIS WILL CAUSE DESTRUCTION OF THE INTERNAL AIS RECEIVER



The Class B AIS Transceiver has to disconnect the other connected units very fast (< 1 ms) when sending an AIS message. The reason for this is that the Class B Transceiver has to build up its transmission power according to standards and thus needs a splitter, which disconnects the other units even faster from the antenna. During usual reception mode all devices are connected with the same antenna.



Picture 13-Front connectors

8 iGPS: Integrated GPS antenna

Available on devices with „-IGPS-„ in name.



Picture 14-view of GPS antenna

GPS antenna with integrated pre-amplifier

- Type: Quadrifilar helix
- Polarization: Right Hand Circular Polarized (RHCP)
- 3dB beam width: min 135°
- Gain (zenith): 18dB
- Noise figure: 0.8dB

Why do I need an own GPS antenna?

Every Class B Transceiver needs an own GPS antenna for position fix and time synchronizing. With this integrated antenna there are no needs to install an external GPS antenna.

As the time needs to be very accurate to know when an available timeslot is starting and ending, it is only able by an own GPS antenna with raw data. Data coming from the NMEA network are not that accurate and cannot used due the international standards also.

Mount the easyTRX2S with IGPS on your map table with view to the sky. We get a good reception beneath it. If you are not sure where you should fix the unit just try it before. To do this please program MMSI, ship name, call sign in the unit. If you connect then power and VHF antenna the easyTRX2S with IGPS should go to "All OK" and the green LED illuminate.

You also can see, if the GPS reception is good, within the programming tool under "Diagnostic" and "TRX Status" within the line "Satellites in view/used". Satellites in view/used 12/08

Value of used satellites should be always > then 4.

Following points could create a bad GPS reception:

- Cable on the top of internal GPS antenna within 30cm
- Boat with metal
- Windows with a thin metal surface on it.

If you try everything and there is also no GPS reception of course you are able to mount also an external antenna to it.

9 iDVBT: Integrated DVBT amplifier

Connectors: BNC female connectors

Available on devices with „-IDVBT-„ in name.

Received frequencies from the VHF antenna will be divided and then amplified. So you can receive DVBT on your DVBT receiver together with your board antenna. Also you can connect a car radio to it.

Amplification in DVB-T(2) range:

350 – 870 MHz @ 20dB +- 3 dB

Amplification in FM range:

150-500 kHz @ ~10dB

1-108MHz @ $\geq 13\text{dB}$

Compatibility to DVB-T2:

As the latest standard of DVB-T2 is within 470-690MHz we are also amplifying this band. Therefore with our DVB-T add-on of the easyTRX25 you also can receive this latest standard.

Please check your DVB-T receiver if it is able to receive this signal.

Connection of DVB-T receiver / car radio:



Picture 15-BNC connectors

On the picture above you can see how to connect your DVBT receiver (right) and car radio (left).

There are two extra accessories for it:

- BNC to IEC-Plug (for DVBT-receiver; Art. Nr.: B035), contained within your package.
- BNC to car radio plug; Art. Nr.: B033, not included

10 N2K: NMEA2000 compatibility

Connectors: NMEA2000 male plug

Available on devices with "-N2K-" in name



Picture 16-N2K socket

NMEA2000 was developed in 2000 by the **National Marine Electronics Association** and is used as a network system to combine about 50 devices. It is used as an easy plug and play solution. Just connect the NMEA2000 connector by cable (not included) to your NMEA2000 network aboard and your AIS data should come to your chart plotter.

Supported PGN (Parameter Group Descriptions)

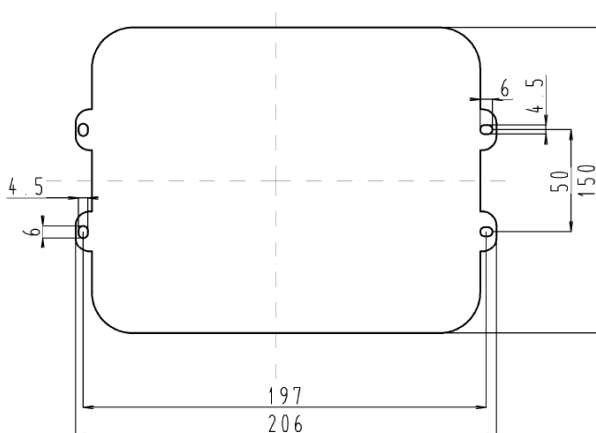
PGN Number	PGN Name
129025	Position Rapid Update
129026	COG & SOG, Rapid Update
129029	GNSS Position Data
129038	AIS Class A Position Report
129039	AIS Class B Position Report
129040	AIS Class B Extended Position Report
129793	AIS UTC and Date Report
129794	AIS Class A Static and Voyage Related Data
129798	AIS SAR Aircraft Position Report
129802	AIS Safety Related Broadcast Message - MESSAGE 14
129809	AIS Class B "CS" Static Report, Part A
129810	AIS Class B

11 Mounting

Please mount under deck with all plugs pointing downward. Make sure that the easyTRX2S is not exposed to direct sunlight or splash water.

Please use the enclosed screws only!

11.1 Dimensions of the easyTRX2S



Picture 17-Dimensions

Please keep area of 10-15cm clear around the unit!

11.2 VHF Antenna

Connector: SO239

The standard VHF antenna, you are currently using for VHF radio, is connected to the easyTRX2S devices with the suffix „IS“.

For the other devices without the suffix “IS” you need either an additional VHF antenna or you have to connect an external antenna splitter e.g. the easySPLIT OCB (item no. A027) between the existing VHF antenna and the easyTRX2S device.

If you have older AIS receiver with external VHF splitter, please do not use this splitter in combination with this AIS Class B transceiver.

11.3 GPS antenna

Connector: BNC socket

The connection to easyTRX2S devices requires a 5V DC feed for GPS antennas.

The used GPS antenna has to be a passive one (i.e. it should incorporate a LNA) and has to 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 easyTRX2S unit GPS antenna connector. The reason for this is that a proper and flawless GPS signal is required for a correct function of the easyTRX2S Transceiver product line. (Issue time-slot method; see „What is AIS“.

The GPS antenna to be used for the easyTRX2S Transceiver must be a dedicated antenna, i.e. not shared with any other GPS receiver.

If you are equipped with a GPS antenna, e.g. for your plotter, there might be the possibility to use both devices with this antenna. At first connect the GPS antenna to the easyTRX2S device. When your plotter is able to receive and process GPS data from an external source you may establish the connection to your plotter with the green and white cable (pos. 7+8).

If your chart plotter is not suitable you need both devices and a GPS antenna respectively.

Rules for mounting of the GPS Antenna

- The GPS antenna should be mounted in an elevated position and free of shadow effect from the ship's superstructure (i.e. in free view to the receiving satellite signals)

- The position of the GPS antenna should provide a free view through 360° with a vertical angle of 5° to 90° above the horizon
- The GPS signals are very sensitive to irradiation of radar, Inmarsat, iridium, etc. transmitters and should be placed as far away as possible.

11.4 Connection to a plotter

Connector: SUB D 15 male connector

If you want to operate the easyTRX2S Transceiver with a chart plotter please connect the devices with your plotter.

Based on the cable assignment paragraph o (under position 1 and 2 in the spreadsheet) the green and white cables of the 6-pole cable are necessary.

Please connect the cable to the plotter ground, the white cable „contains“ the AIS data. This white cable has to be connected to the NMEA data **input** of the chart plotter. If the plotter interface is configured to 38400 baud and the plotter is ready for AIS data, received data will be shown immediately.

11.5 External switches

Connector: SUB D 15 male connector

It is possible to connect external switches to all easyTRX2S devices. Moreover, you have the opportunity to connect an external buzzer for the integrated AIS S.A.R.T. and CPA alert.

11.5.1 SRM button

Connector: SUB D 15 male connector

According to the cable assignment under paragraph o (Pos. 7 and Pos. 8 in the spreadsheet), the green and white cable of the 4-pole cable are

destined for this functionality. If you connect these cables with a push button (not a SWITCH) of your switchboard and close together the cables with the button, a SRM (Safety related message) is sent by the device.

The preset SRM message which is transmitted is called:

PAN PAN PAN. Subsequently the SRM LED starts flashing for one minute. When this LED stops flashing you may send another SRM message at the push of the button. (As a consequence more frequent transmission than one SRM per minute is not possible which corresponds to international AIS regulations. Please do not connect a switch with the cables. A permanently connected switch does not lead to a transmission every minute. Our transceivers verify a „real“ push of a button to trigger a SRM transmission.)

If you want to use this function in an easy way, you can purchase the easyCPA³ (A056) as accessory. It is a small box which includes a button for PAN PAN and a switch for switching to “silent mode” or “anchor alert” next to an external signal generator for CPA alert and AIS S.A.R.T.

11.5.2 Switch (function set by software)

The default value is set to silent mode. If you want to change the function please do this by using the programming tool.

11.5.3 Silent mode „pure receiving mode“

According to the cable assignment under paragraph o page 14, the brown and the yellow cable of the 4-pole cable are destined for this functionality. If these cables are connected to a SWITCH (not a Pushbutton) e.g. switchboard and short-circuit the cables with the button, i.e. connect them the easyTRX2S Transceiver is set to pure receiving mode, i.e. “silent mode”. By opening the switch the TRX2S resets to normal conditions automatically, i.e. receiving and transmitting mode.

This function is preset by default with a switch on the easyCPA³ unit.

11.5.4 Anchor alarm

If you want to change the function to anchor alarm please open the programming tool – see under paragraph 6.7. You can choose one function. If the anchor alarm is active by set the switch to “1” and you drive out of range of your set position the TRX2S set the output port of CPA to high and an external buzzer e.g. easyCPA³ will switch on.

11.6 External Devices (additional)

11.6.1 Buzzer

Specification buzzer:

Voltage range: 12-24VDC

Max. Current: 0,2A

There is the possibility, to connect the easyCPA³ as an additional accessory. The device has predefined switches and buttons for the above-mentioned functions. The easyCPA³ additionally has an external signal generator for CPA alert and AIS S.A.R.T.

Based on the cable assignment under position 14 you may connect our small external signal generator with the brown and white cable. This is a device which is only suitable for CPA or anchor alert and AIS S.A.R.T.

Simply connect the corresponding colors.

When the CPA is connected the easyTRX2S devices send an alarm signal to the switching output. The attached signal generator easyCPA generates a loud and clearly audible alarm sound. This alarm sound rings out at a CPA alert or if an AIS SART message is received.

11.6.2 Multiplexer (NMEA-Input, 38400/4800 baud)

You may connect a NMEA sensor (e.g. log, anemometer, etc.) with a baud rate of 4800 or 38400 baud to the 6 pole cable of the pair of conductors

(brown/yellow) position 5 and 6. The sensor data is put out to the plotter and PC together with the AIS and GPS data.

(Note: You cannot connect a GPS receiver as the easyTRX2S has its own GPS receiver, and only these data can be interpreted and displayed at the plotter or PC.

If you want to multiplex data from a 38400 baud device please set the input baud rate with the programming tool.

You can find this under "static data" => "Mux-in"

12 TROUBLESHOOTING

Problem	Cause	Solution
Unable to connect to easyTRX2S	USB cable connected correctly?	Install the Windows driver for the USB serial interface (FTDI) from the internet. (For Windows select the „recommended“ driver installation). The driver is also contained on the CD and will be installed automatically.
	Device configured properly?	Repeat configuration, if necessary contact your service partner
No data output	not connected	Check connection; are cable colors correct? Is the data output of the easyTRX2S device connected with the data input of the plotter? Is the data rate of the NMEA

		port of the plotter correct? (standard value: 38400 baud!)
Entering MMSI not possible	MMSI used before?	The MMSI cannot be programmed twice. The device must be sent back to reset the MMSI. Please ask your service partner for detailed information.

13 Maintenance

The easyTRX2S product line does not contain parts that require maintenance. Avoid using chemical solvents to clean the easyTRX2S as some solvents can damage the case material.

Unauthorized opening of the device will invalidate the warranty.

14 STANDARDS

This product complies with all necessary standards according to 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
- IEC60945: 2002-08
- IEC61162-1:
- IEC61108-1: GLOBAL NAVIGATION SATELLITE SYSTEMS (GNSS) – Part 1:
- EN 301 843-1 v2.1:
- EN 50383: 2002
- EN60950-1:2006

15 Technical data

Parameter	Value
Dimensions	207mm x 150mm x 30mm
Weight	≈ 800 gram (depends on TRX2S variant)
Power	9,6VDC –32,1 VDC
Power consumption	3,6W @12VDC
Maximum current consumption	300mA @12VDC, peak current 1,9A
GPS receiver (internally in AIS)	IEC 61108-1 compliant
Ports(SUB D 15 male plug)	USB
	RS232 NMEA 38.4k / 4.8kBaud in / out
	RS232 NMEA 4.8kBaud in
Connectors:	
VHF antenna input	Socket SO 239
VHF radio input	Socket SO239
GPS antenna	Socket BNC
FM/DVB-T (only on units with this functionalities)	Socket BNC
N2K (only on units with this functionalities)	NMEA2000 micro plug
Network/data	RS232 / data / network (15 pole Sub D socket)
Card reader	SD card, max. 32GB
VHF Transceiver	1 transmitter
	2 receivers (one receiver for AIS Channel 1 and 2)
AIS1: 161.975 MHz AIS2: 162.025 MHz	Frequency: 156.025 and 162.025 MHz in 25 kHz steps

Parameter	Value
DSC	DSC channel 70 reception for AIS channel management is implemented.
Transmission power	33dBm \pm 1.5 dB (of 1,4W - 2,8W)
Channel Bandwidth	25kHz
Channel spacing	25kHz
Modulation modes	25kHz GMSK (AIS, TX and RX)
	25kHz AFSK (DSC, RX only)
Bit rate	9600 b/s \pm 50 ppm (GMSK)
	1200 b/s \pm 30 ppm (FSK)
RX sensitivity	- 107dBm 25kHz (Message error rate 20%)
Co-channel suppression	10dB
Adjacent channel suppression	70dB
Intermodulation ratio	65dB
Blocking	84dB
Environmental	IEC 60945
Operating temperature	-25°C to +55°C
AIS software version	3.x.x
Protection class	IP30
Notifications	Power supply "ON", hardware error, safety messages, silent mode, transmitting receiving CPA alert & AIS S.A.R.T. alert

Parameter	Value
Extra equipment	Via button for Silent mode / Anchor alert, via button for SRM, transmitting safety message or silent mode. Switch contact for external signal source for CPA or AIS-SART signal. (zoomA max. at contiguous irregular input voltage of the easyTRX2S unit)
Compass safe distance	0,8m
Supported AIS messages in transmission mode	<p>Msg. 18: The Class B Position Report (dynamic data) is transmitted: Every 30 seconds if speed over ground (SOG) is > 2 kn. Every 3 minutes if speed over ground (SOG) is < 2 kn.</p> <p>Message 23 of a base station may demand and change transmission intervals.</p> <p>Msg.19: Extended position report may be requested by a base station.</p> <p>Msg.24: Static data Type 24A / 24B is sent every 6 minutes.</p>

Parameter	Value
Supported AIS messages in transmission mode	Msg.14: The safety message (SRM) sends information: "PAN PAN PAN". This is only possible upon activation of the external button. IMPORTANT: It is not possible to initiate other AIS messages with the easyTRX2S than the ones stated above.

16 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.

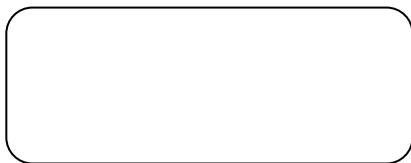
Frequently asked questions:

You find them here: www.easyais.com/en/faqs/

Contact:

Contact your local dealer for WEATHERDOCK AIS support in most cases he can help quickly and straightforwardly.

Stamp of your dealer:



If he cannot help you we are happy to provide help solving your problem:

Weatherdock AG
Emmericher Strasse 17
90411 NUREMBERG
GERMANY
Tel: +49 911-37 66 38 30
support@weatherdock.de
www.easyais.de

Please do not send an apparently defective device to us without prior consultation. In most cases the problem can be solved via telephone or email.

17 License agreement

BY USING THE EASYTRX2S YOU AGREE TO BE BOUND BY THE CONDITIONS OF THE FOLLOWING WARRANTY. PLEASE READ THIS CAREFULLY.

WEATHERDOCK AG GRANTS YOU A LIMITED LICENSE TO USE THIS DEVICE
WEATHERDOCK AG GRANTS YOU A LIMITED LICENSE TO USE THIS DEVICE
IN NORMAL OPERATION. TITLES, PROPERTY RIGHTS AS WELL AS
INTELLECTUAL PROPERTY RIGHTS CONTAINED IN AND OF THE SOFTWARE
REMAIN IN WEATHERDOCK AG.

18 Warranty

WEATHERDOCK AG GRANTS A WARRANTY OF 2 YEARS FROM THE DATE OF PURCHASE FOR DEFECTS IN MATERIAL OR WORKMANSHIP OF THIS PRODUCT. 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 BREACH OF WARRANTY.

PRODUCTS PURCHASED IN ONLINE-AUCTIONS DO NOT ENTITLE YOU TO DEDUCTIONS OR TO THE USE OF WEATHERDOCK'S SPECIAL OFFERS. FURTHERMORE WE DO NOT ACCEPT PURCHASE CONFIRMATIONS FROM ONLINE AUCTIONS AS EVIDENCE FOR WARRANTY CLAIMS. AN ORIGINAL RECEIPT IS COMPULSORY FOR SATISFACTION OF WARRANTY CLAIMS. WEATHERDOCK DOES NOT REPLACE MISSING DEVICE OR ACCESSORY PARTS IN PRODUCTS WHICH WERE PURCHASED IN ONLINE AUCTIONS. IN A WARRANTY CASE PLEASE CONTACT YOUR WEATHERDOCK DEALER. HE WILL AGREE ON THE NEXT STEPS WITH YOU. IN THE CASE OF DISPATCH PACK UP THE DEVICE PROPERLY AND SEND IT SUFFICIENTLY STAMPED TO THE ADDRESS STATED BY YOUR DEALER. FOR WARRANTY REPAIR ALWAYS ENCLOSE A COPY OF YOUR ORIGINAL SALES RECEIPT FOR EVIDENCE OF OWNERSHIP. THE WEATHERDOCK AG EASYTRX2S-IS_WIFI DOES NOT CONTAIN PARTS WHICH HAVE TO BE REPAIRED. IF YOU HAVE

A PROBLEM WITH YOUR DEVICE, PLEASE CONTACT YOUR EASYTRX2S-IS_WIFI DEALER. ANY ATTEMPT TO OPEN, ALTER OR MODIFY THE DEVICE WILL INVALIDATE WARRANTY AND MAY DAMAGE THE DEVICE IRREPARABLY.

WARNING

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 DEVICE FROM THE EASYTRX2S PRODUCT LINE 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:

THE RESPONSIBILITY RESTS ON THE USER ALONE TO USE THE EASYTRX2S PRUDENTLY. EASYTRX2S DOES NOT RELIEVE YOU FROM DUTY OF CARE!

THEREFORE GOOD SEAMANSHIP IS STILL ESSENTIAL.

19 Notes



EXCELLENCE IN RADIO TECHNOLOGIES
Safety • Navigation • Tracking

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