„vmsTRACK-PRO" - Transponder

Manual

AIS transponder for VMS tracking using AIS-Class B CSTDMA and DSC, with GPS

Rev. 1.5

Weatherdock AG, Germany

PLEASE READ THIS FIRST!

Safety Precautions

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

LICENSING

IMPORTANT:

In most countries, the operation of a VHF unit using the marine band is included under the vessels marine VHF license provisions. Please contact the relevant authority in your country for more information. In accordance with a policy of continual development and product improvement the vmsTRACK-PRO hardware and software may be upgraded from time to time and future versions of the vmsTRACK-PRO may therefore not correspond exactly with this manual.

When necessary upgrades to the product will be accompanied by updates or addenda to this manual. Please take time to read this manual carefully and to understand its contents fully so that you can install and operate your system correctly. Information contained in this manual is liable to change without notice. Weatherdock AG disclaims any liability for consequences arising from omissions or inaccuracies in this manual and any other documentation provided with this product.

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ATTENTION:

PLEASE USE THE VMSTRACK-PRO CAREFULLY AND NOT UNINTENDED. ALSO THE VMSTRACK-PRO WILL NOT OPERATE AUTOMATICALLY. IT MUST BE INITIALISED BY THE USER IN CASE OF EMERGENCY

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Important Product Information
The equipment is compatible with the globally used AIS system (Automatic Identification System).

It may be operated in the following European countries:

BG	DK	DE	EE	FI
FR	GR	IE	IS	IT
LV	LT	BE	MT	NL
NO	AT	PL	PT	SI

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Revision of the operation manual

Rev. 1.0 New, SW, July. 2016

Rev. 1.1 Remote Control, SW, July 2016

Rev. 1.2 Setup with User-App: JZ, Aug. 2016

Rev. 1.3 Minor changes; VV, Dec 2016

Rev. 1.4 Update with regards to RED Directive, Jan 2017

Rev. 1.5 2nd Update with regards to RED Directive, Jan 2017

1 Short description

The vmsTRACK-PRO is a portable battery or wire powered VHF-Position transmitter with an integrated GPS-receiver.
The device is intended for the use in locating operations.
The vmsTRACK-PRO operates as a VHF-Transmitter and it can be activated in two situations by pressing two different buttons:

(A) Normal operation (transmitting dynamic and static data to receiving stations).

(B) Alerting in case of emergency.

The range depends on the height of the transmitters' antenna over sea level. The range is approx. 10-15 nautical miles, if the height of vmsTRACK-PRO's antenna 1 m and up above sea level assumed that the receiving antenna is at a height of 5 m and up (ship's VHF antenna). The Li-Ion battery pack provides a capacity that ensures an operation time of more than 120 h, when activated.
This device maintains water tightness down to 10 m depth, not unduly affected by seawater or oil and is resistant to sunlight. It withstands drops from a height of 20 m into water.
The Li-Ion batteries can be recharged easily using the charging station that can be purchased by an authorized distributor.

1.1 Optional features

The vmsTRACK-PRO has 4 possible additional features:
* = optional feature, depending on modal type

1.1.1 RM-Tech.*

Request message technology, ready to use with RM box from Weatherdock

1.1.2 Carrier Sense*

Carrier Sense technology is a protocol which verifies the absence of other traffic before transmitting

1.1.3 DSC*

DSC (GMDSS) Alert technology, always with buzzer

1.1.4 Bluetooth*

With Bluetooth technology, you can connect and setup the vmsTRACK-PRO with the vmsTRACK-PRO Mobile application.
For more information please see chapter ***9*** Remote Control

To find out your unit's optional features please have a look at the checkboxes on the label:

2 Activators and Indicators

2.1 Activating elements

2.1.1 Button "ON"

Pressing the button „ON“, the vmsTRACK-PRO enters the Normal Operation mode.

2.1.2 Button "ALERT"

With the button "ALERT", the device can be activated in case of emergency. A slider to prevent false alarms covers the button.

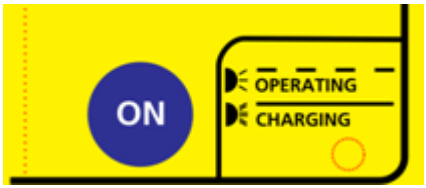
2.2 Indicators

2.2.1 GPS LED

The green LED, with the marking „GPS", is blinking, when the device receives GPS signals and is able to get a position fix. If the GPS LED does not blink, there is no GPS reception possible.

2.2.2 ON LED

The yellow LED, with the marking „ON", is blinking, when the vmsTRACK-PRO is activated in case of Normal Operation mode.
This LED gives also information about the battery status. Regular flashing shows battery full. Double flash means the battery is half full. Three times flashing shows that battery is running empty.



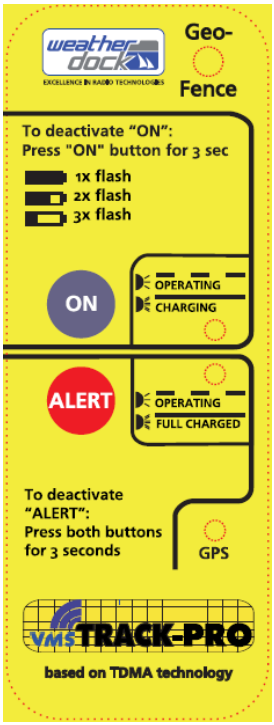
In charging mode (i.e. the unit was turned off before) the yellow LED is illuminated continuously during charging period.

2.2.3 ALERT LED

The green LED with the marking "ALERT" is blinking, when the vmsTRACK-PRO is in alert mode.
In charging mode this LED is illuminated continuously when the battery is full charged.

2.2.4 Geo-Fence LED

The white LED is flashing, when the vmsTRACK-PRO has entered a Geo-Fence region. By that flashing LED, the captain is informed and advised to leave that region until the LED turns off.



3 Operation Instruction

3.1 Activation "ON"

Figure 4

- Press the button „ON“, until the yellow LED is on.

- The yellow LED starts flashing every 2 seconds. As soon as a GPS position is available the GPS-LED start flashing too. The vmsTRACK-PRO transmits a burst of eight VHF messages. When the vessel has moved 2 nautical miles or every 60 seconds (or other interval time), another burst is transmitted.

If there is no GPS positions fix available, the device transmits the last known position.

- In case that the vmsTRACK-PRO detects manipulation (tamper), the unit will transmit every 60 sec, until the tamper situation has disappeared.

- With the vmsTRACK-PRO VHF receiver connected to a chart plotter or laptop with navigational software you can check the transmission of the vmsTRACK-PRO. Normally the chart plotter or navigational software shows a ship symbol on the display. The information of the unit ID (9 characters) is shown together with the device name and destination.

- Following information is send out:

  - ***Unit-ID**: (9 digits)*
  - ***Position** : Latitude & Longitude with a resolution of 1/10.000 of a minute,*
  - ***Speed over ground (SOG),***
  - ***Course over ground (COG),***
  - ***Vessels / Captains name**: (20 characters)*
  - ***Vessels / Captains destination or area of activity**: (20 characters),*
  - ***Ship-Type,***
  - ***Alarms and Alerts (if manipulated or tampered)***

AIS Message No. 1	Special Manoeuvre		Spare		
	Bit 143	Bit 144	Bit 145	Bit 146	Bit 147
AIS Message No. 18	Spare				
	Bit 38	Bit 39	Bit 40	Bit 41	Bit 42
GPS Tamper	1				
Power Tamper		1			
Bracket Tamper			1		
Manual Alert				1	
Geo-Fencing Alert					1

[For Msg. 18 (CS) the tamper bits are inserted in the five MBS bits of the "Reserved for regional or local applications".]

- The bright white LED starts flashing, when the vessel is entering a geo-fenced area. The captain is advised to leave this area.

- To deactivate "ON" please press the "ON" button for three seconds, until all LED's are off.

3.2 Activation "ALERT"

-
- Shift the slider down (green arrow) and,

- Press the button "ALERT" until the green LED is on. Then take care that the vmsTRACK-PRO has got line of sight to the sky. This ensures best GPS reception conditions.

- The ALERT-LED starts flashing every 2 seconds. As soon as a GPS position is available the GPS-LED starts flashing too. The vmsTRACK-PRO starts transmitting a position report every 60 seconds.
  If the unit loses a GPS position fix, then the GPS-LED

stops flashing but the vmsTRACK-PRO will transmit the last known position.

- The VHF message 1 or 18 have set the "Manual Alert" bit, see **Fehler! Verweisquelle konnte nicht gefunden werden.**.

- The ALERT-mode can be terminated by pressing both buttons for more than 3 seconds. The device enters the normal operation mode ("ON").

- The vmsTRACK-PRO works default on proprietary VHF frequencies (not international AIS frequencies). But the unit can be configured to operate as an AIS-SART instead (see Programming section). Then it uses the AIS frequencies!

4 Bracket

The "Tamperproof and power" bracket A122 is used for both, tamper detection and connecting to a DC power supply. The other type of bracket A121 has got no tamperproof function. The bracket has got a 3 meter black cable harness which can be connected to the power supply.

Do not remove the seal ring. It protects the electrical contacts against saltwater.

4.1 Installation Tips

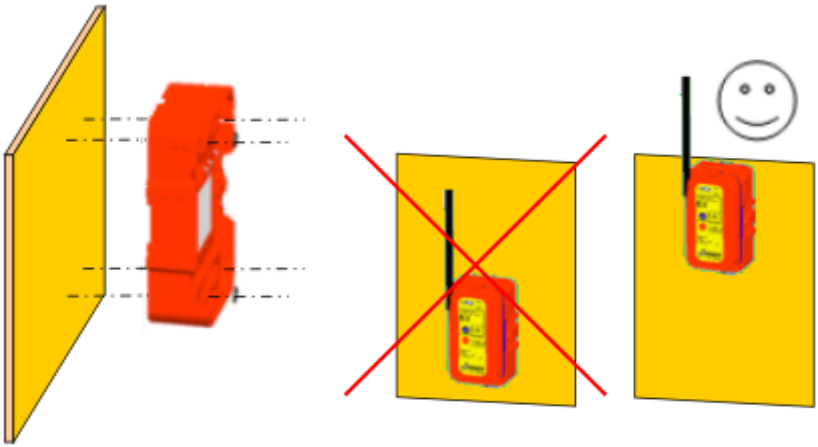
To insert the vmsTRACK-PRO into the bracket, you can see it in pictures below.

4.2 Installation on a pole or at a wall

In the next pictures and sketches, you can see how to mount these devices on a pole or at a wall:

ATTENTION: Do not have a metal pole close to the antenna (left figure). This would significantly reduce the radiated power of the VHF signal. The right figure is perfect.

There are 4 holes, which are used for screwing the bracket onto a wall.
This wall can be a wooden or plastic wall. In case of a metal wall, you have to consider the antenna position. The antenna must not be infront of a metal wall. The vmsTRACK-PRO should be placed as high as possible, so that the antenna comes higher than the top of the wall (see figure below):



With the metal pin you can additionally secure the unit(Metal Pin is an optional accessory). Push the stick completely into the whole. The unit is fixed tightly with the bracket. This can be used as a mechanical tamper proof. Once the stick is in,

you cannot pull out the vmsTRACK-PRO without destroying the bracket or vmsTRACK-PRO; so be careful using the stick.

5 Charging the batteries

The vmsTRACK-PRO can be recharged in the Power-Bracket. Inside the vmsTRACK-PRO there are Li-Ion batteries, which have got a capacity of around 120 h operation time (. These batteries are high quality batteries with very low self discharge. So you can store the fully charged vmsTRACK-PRO for more than three month without a significant loss in capacity.

Place the vmsTRACK-PRO into the Battery-Charger. The battery charger must be connected to DC power supply (9 to 32 VDC, 2 A).

You can charge the unit in any mode. When the unit is off, the LEDs will show the charging status. If the yellow LED is continuously on, the batteries will be charged. When the green LED is continuously on, the batteries are fully charged.

In Normal Operating mode (unit is transmitting) the “ON” LED or "ALERT LED" is blinking every 2 seconds. So you can see the unit is operating.

During this mode the batteries will be charged, too. The batteries will be kept full charged as long as the DC power supply is connected.

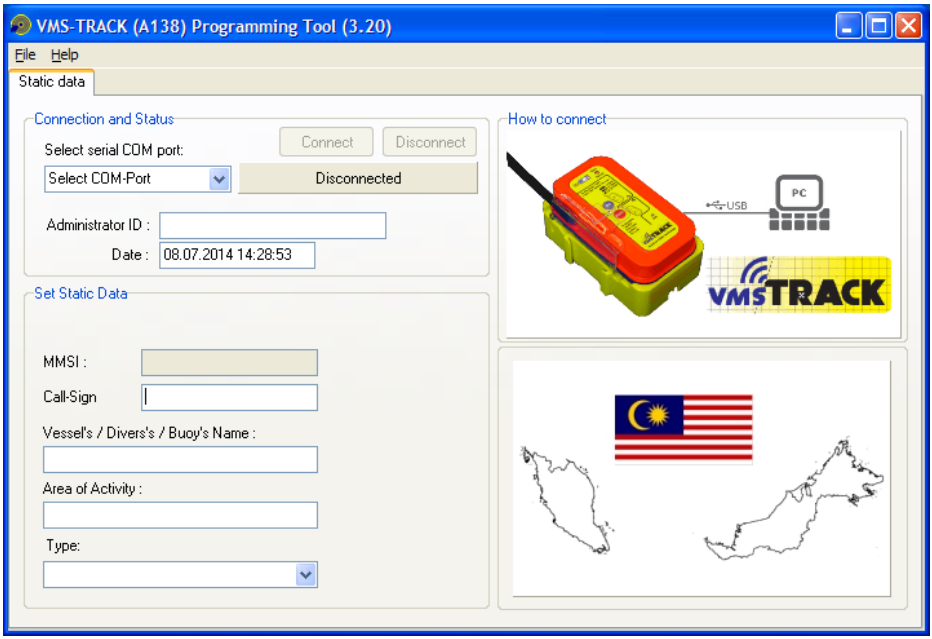
6 Programming

The vmsTRACK-PRO can be programmed with information, which is included in the VHF messages and different settings.

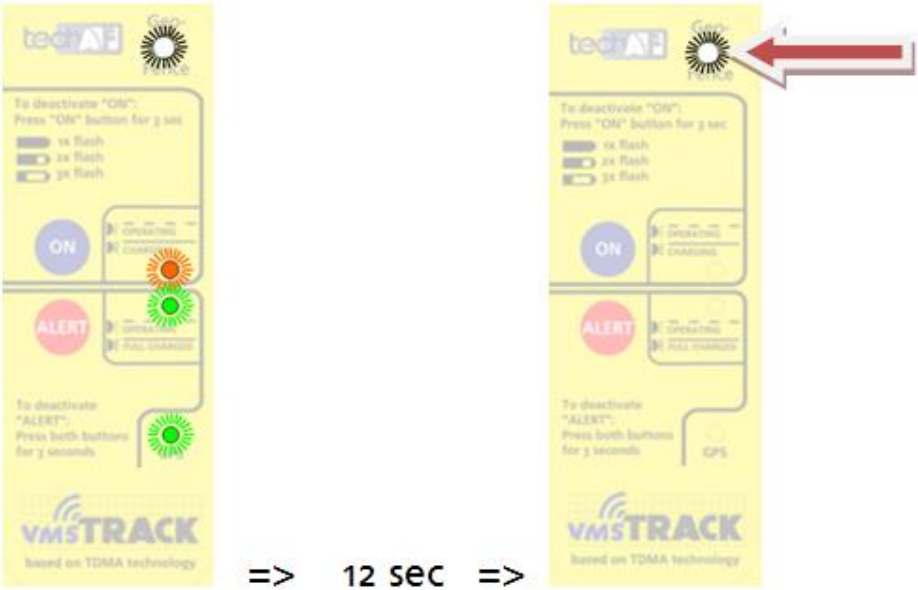
The Unit-ID is a 9-digit figure like the MMSI, known from the AIS system. It is a unique number pre-programmed by the manufacturer or administrator.

In order to program the vmsTRACK-PRO you need the USB-Programmer device A124, which can be purchased from your distributor.
The USB-cable shall be connected to a PC or laptop.
With the Programmer device comes a CD-ROM with the installation software for the PC.

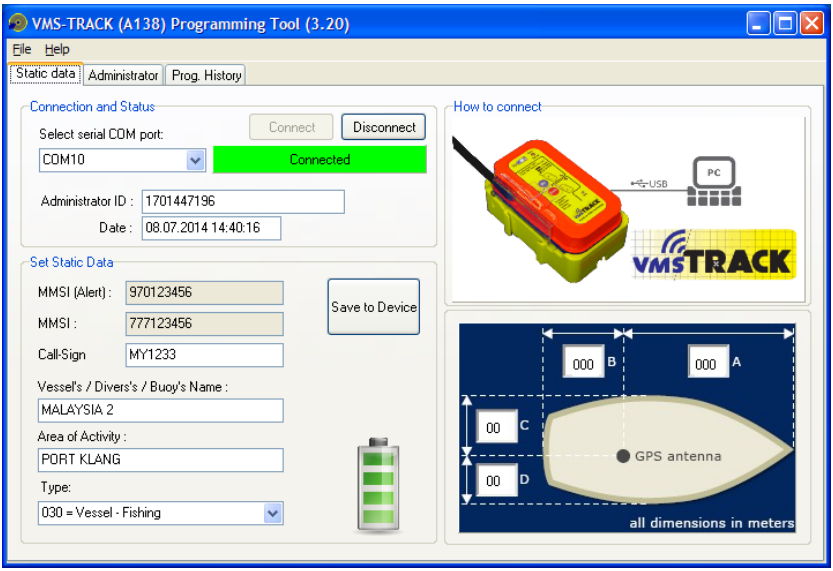
Insert the CD-ROM into your PC or Laptop and start the setup program.
On the Windows-Desktop you will see the icon of the vmsTRACK-PRO programming software.
When you double-click that icon you will be asked to select a country, then following program window will open:



Now you have to insert the vmsTRACK-PRO into the Programmer. The vmsTRACK-PRO will turn on immediately. You have to wait ca. 8-12 sec seconds until the white LED is turned on only!



When the white LED lights up, go to the next step in the PC software, select the right COM-Port and press "Connect". After that the following picture will occur:



The contents shown above are just an example. The vessel's name and the area of activity can be entered or changed. The MMSI is pre-programmed and cannot be changed. The status of the rechargeable battery is also shown on this tab-sheet. When you are administrator, then you have got a blue dongle (Bo84), which has to be inserted into a USB port.

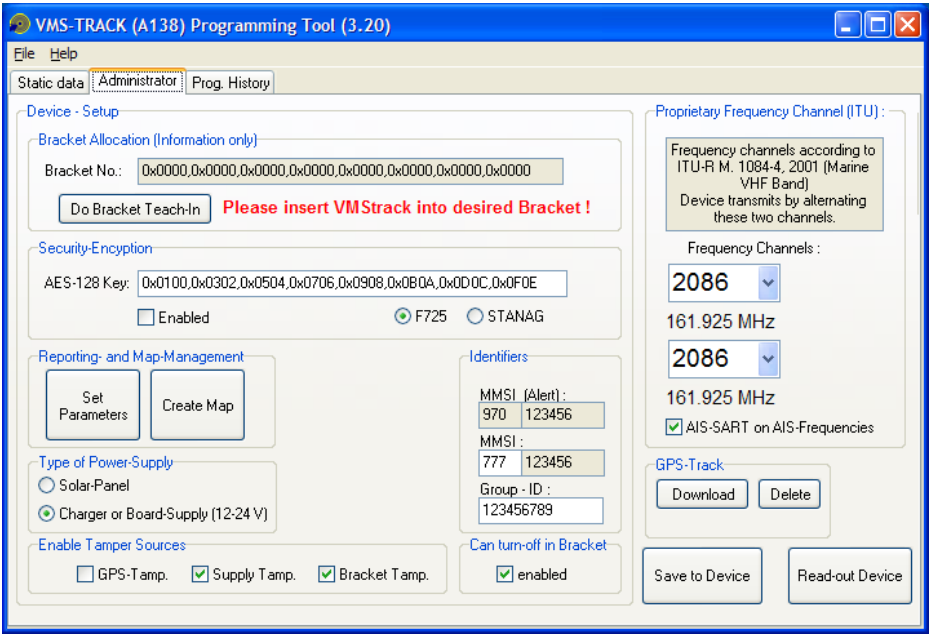
(Administrator - Dongle)

Then you do have special rights in order to change other settings of the vmsTRACK-PRO, which are explained in the following chapter. The "Administrator ID" is the serial number of the dongle.

7 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 (see **Fehler! Verweisquelle konnte nicht gefunden werden.**), then you will see the hidden page called "Administrator"

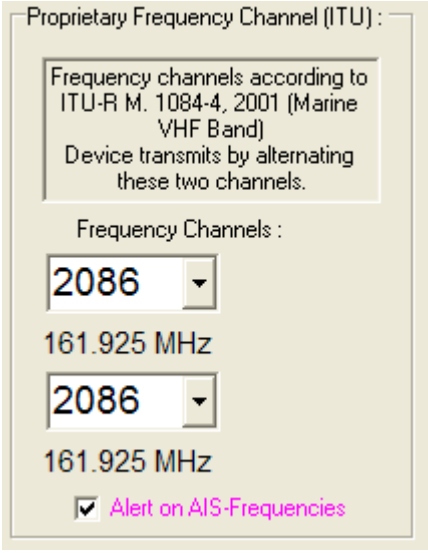


7.1 Set Identifiers

The administrator can change the MMSI, except the first three figures of the Alert MMSI, which is the AIS-SART MID = "970". The following 6 figures are the serial number of the device.

7.2 Frequency Setting

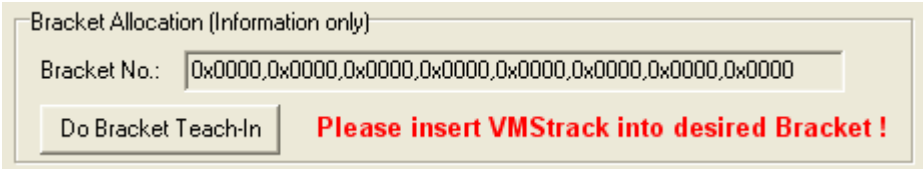
On the right side you can change the frequency the vmsTRACK-PRO is sending. The frequency must be applied at the local authority (of the country). You can select two different or two same frequencies. When choosing two frequencies, the vmsTRACK-PRO is alternating its transmissions on these channels.
The frequency the vmsTRACK-PRO should be equal to the frequencies of the receiving station.



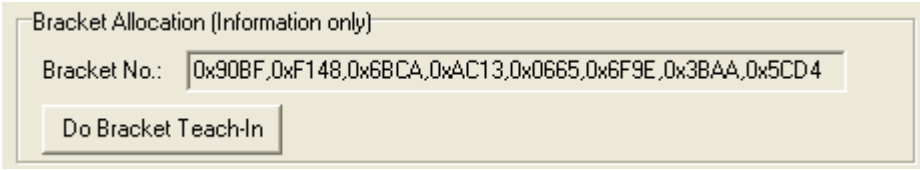
Be aware, that the selected frequencies have also to be set in the receiver; otherwise you won't see the vmsTRACK-PRO on the electronic chart display.
If the checkbox "Alert on AIS-Frequencies" is selected, then the device will send as an AIS-SART (Search-and-Rescue-Transmitter) on AIS to ship and shore stations nearby. In that case the MMSI starts with "970", which indicates, that this is an AIS-SART!

7.3 Bracket Tamper (optional Accessoire)

The Bracket Tamper function checks if somebody is manipulating the unit. When somebody removes the vmsTRACK-PRO from the Bracket Tamper, the vmsTRACK-PRO detects that and sends out an alerting message to the shore station.
To pair the vmsTRACK-PRO with a bracket, you have to aquire the right AES-128 key. Every bracket has got its individual key. The pairing of vmsTRACK-PRO with the bracket is done only once at the beginning of the installation.
The factory delivery state shows the following:

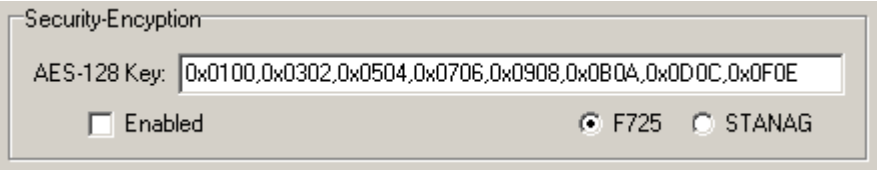


The Bracket No. is set to an initial value (zero "O"). Now you have to insert the vmsTRACK-PRO into the desired bracket and press on the "ON" button to start the unit.
The unit starts flashing the yellow LED. Since successful pairing the white LED flashes three times. Now the vmsTRACK-PRO is in normal operation mode. With that bracket the vmsTRACK-PRO generates always different hopping codes. So there is no repeating code sequence, which makes a hacker attack impossible.
Whenever the user removes the vmsTRACK-PRO from the bracket or uses another bracket, a tamper is detected and transmitted through the VHF channel.
If a vmsTRACK-PRO is already paired you see the following figure:



If the bracket or the vmsTRACK-PRO has to be exchanged for some reason (hardware defect), Administrator can restart pairing by pressing on the button “Do Bracket Teach-In”.

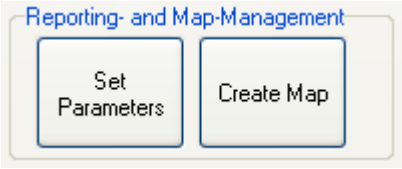
7.4 Security-Encryption



The Administrator is able to enable or disable VHF message security-encryption. If encrypted, a standard VHF receiver is not able to get the message information. The encrypted targets are not shown on the chart-plotter.
The encryption is done with an AES-128 Bit key, which can be programmed here. *[It has to be entered with the LSW-first (low significant word (=16 Bit) first.]*
There are two types of encryption F725 and STANAG.
The F725 method allows the receiver to decrypt the message and to generate a standard AIS-Msg. out of it.
The STANAG encrypted message must be decrypted by the software which is evaluating the message contents and doing the display of the targets.

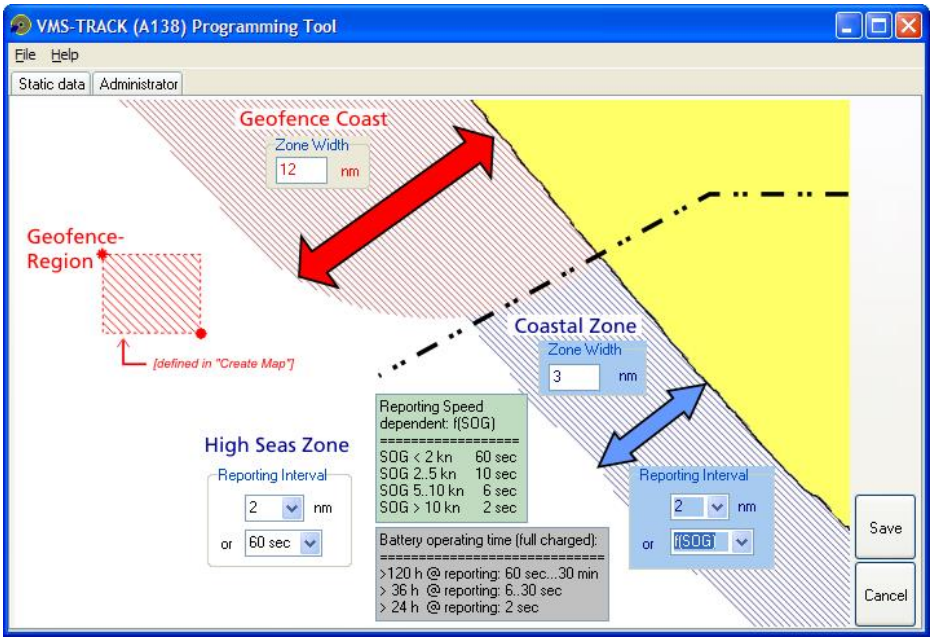
7.5 Map and Geofencing

The vmsTRACK-PRO has the ability of checking its GPS position against geo-regions, which are stored in the vmsTRACK-PRO memory.
Geo-regions can be rectangular shapes, circular shapes or the contour of the Malaysian coast line.



For selecting the behaviour of the vmsTRACK-PRO within the various geo-regions please press on the button "Set Parameters":

7.5.1 Set Parameters



The Map- and Geo-Fencing Management supervises special regions, which are stored in the vmsTRACK-PRO's memory. Whenever the vmsTRACK-PRO (i.e. the vessel) enters such a geo-fence region (red areas), the vmsTRACK-PRO will alert the captain by flashing the bright white LED on the top. This is useful for defining regions, where for example fishing is not allowed.
In case of a geo-fence alert the vmsTRACK-PRO will also send out an alert message to the shore station.

How to define the Geofence regions please see the chapter "Create Maps".
In this tab-sheet you can change the zone width of the geo-regions and you can define the individual reporting intervals.

- Geofence Coast
  Here you can change the width of the zone (counted from the coast-line).When the vmsTRACK-PRO enters this zone, the geofence-alert (white LED starts flashing) is active and a VHF message is send out with the tamper alert bit set.

- Coastal Zone
  This is the coast-line of your homeland. You can also change the width of this zone. When the vmsTRACK-PRO enters this region the reporting interval changes to the defined parameters [60 sec up to 30 min][1]. In **Fehler! Verweisquelle konnte nicht gefunden werden.** (example) the reporting of the VHF messages will be every 1 nautical mile or with a speed dependent rate f(SOG) (see green table).

- High Seas Zone
  Outside coastal zone, the ship is assumed to be on high sea. The reporting interval is set to the defined interval [60 sec up to 30 min][1]. In **Fehler! Verweisquelle konnte icht gefunden werden.** (example) it is 2 nautical miles or 30 minutes.

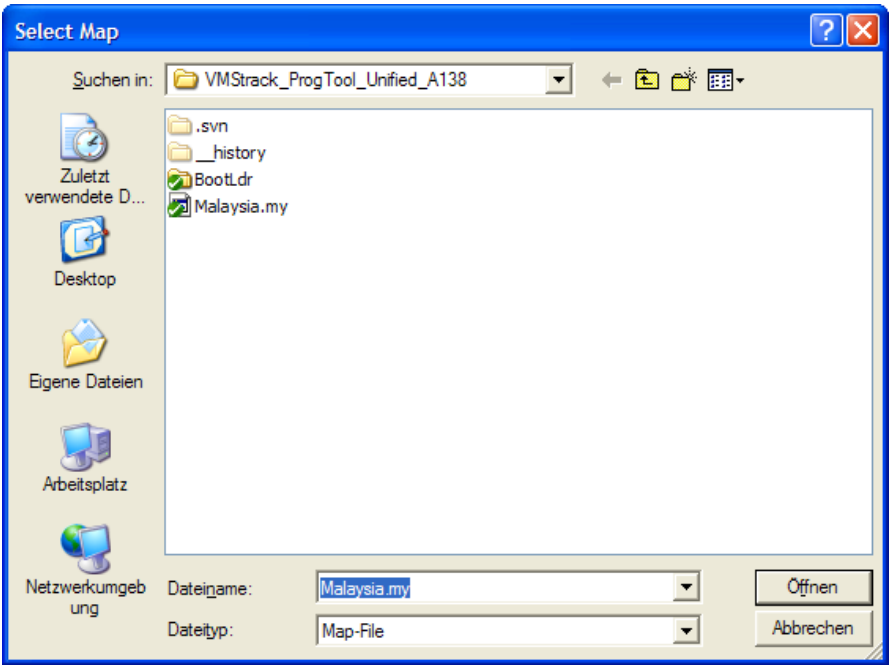
[1] For A138 the interval can be reduced down to 2 sec (e.g. regattas).

If you do not want any difference between high seas and coastal zone, you just set the reporting interval to the same values.

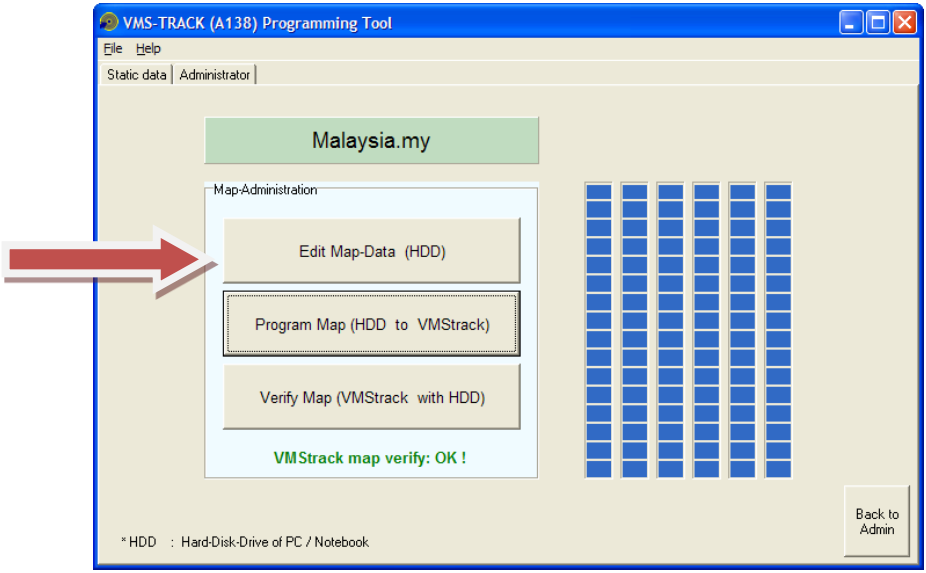
Remark: When Geofence Zone and Coastal Zone overlap, the Coastal Zone has got priority over the Geofence Zone!

7.5.2 Create Maps (Coastline / Geofence)

The vmsTRACK-PRO has got the capability of storing map information like the Malaysian coastline, coastline of neighbour countries and geofencing regions.
For managing the maps press on "Create Map" and then "Edit Map-Data".
You will be asked to enter the map file. Please choose the file.



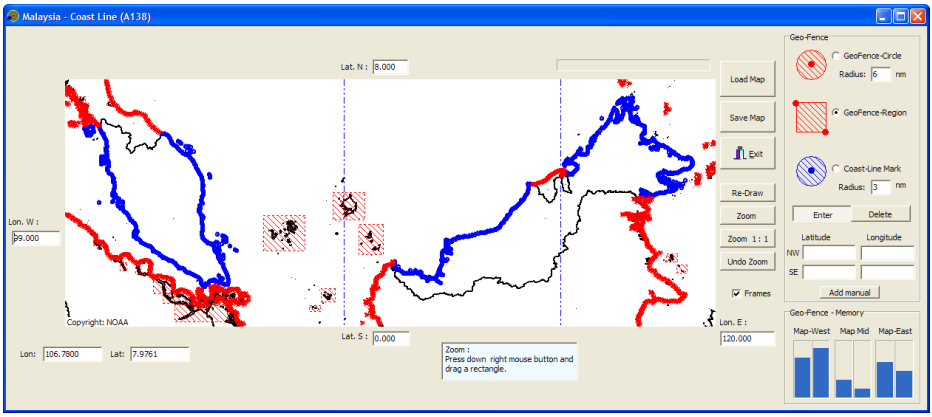
Then the Map-Management Window opens. The ProgTool checks automatically, whether the vmsTRACK-PRO has got the selected map file programmed or not.
A text below appears, if the verification was O.K. or not.



When you press on the button "Edit Map-Data (HDD)"
Then the Map-Editor opens with the map data, which are found on the Hard-Disk-Drive (HDD) of the PC or laptop.

7.6 Edit Map (Coastline / Geofence)

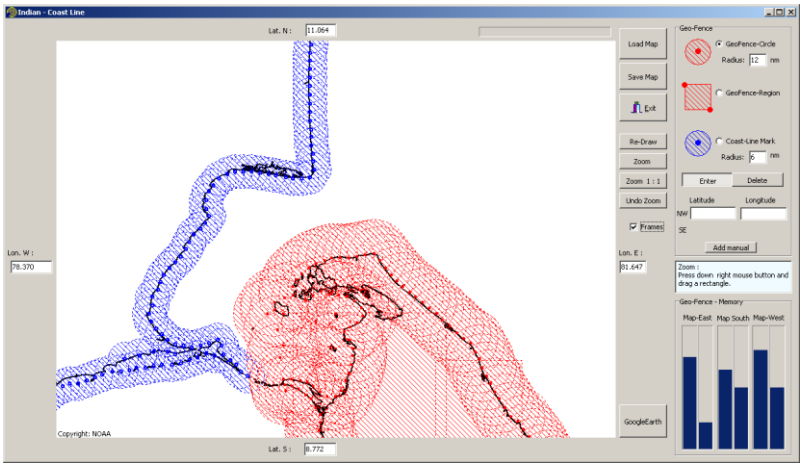
When you click on "Edit Map-Data (HDD)" you get the following window:
This is the drawing and displaying tool for map information.



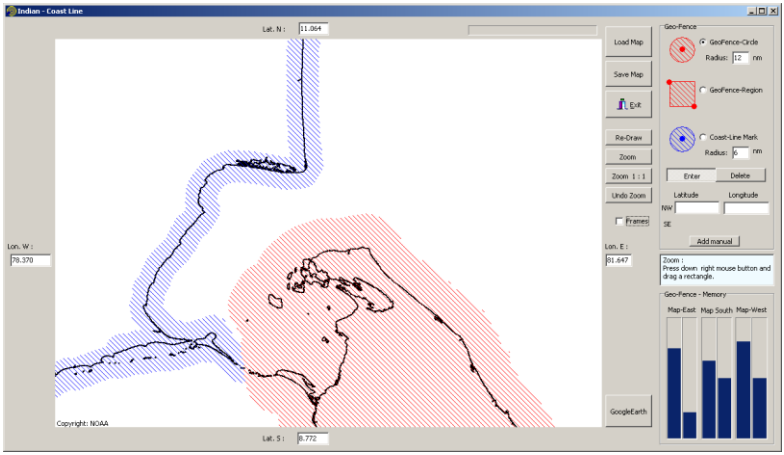
Now you see the coast line of Malaysia and the neighbour countries.
The homeland coastline is the blue dotted line, which is the coastal zone.
The red dotted lines and regions are the "Geofence" areas.

7.6.1 Zooming

You can zoom into the chart by dragging a rectangle. Just press down with the right mouse button on the map and drag the rectangle. Then release the right button.
You can undo the zoom by clicking on the "Undo Zoom" button. To get the whole chart again click on the "Zoom 1:1" button.
If you don't like zooming with the right mouse button, you just use the "Zoom" button and drag the rectangle with the left mouse button.

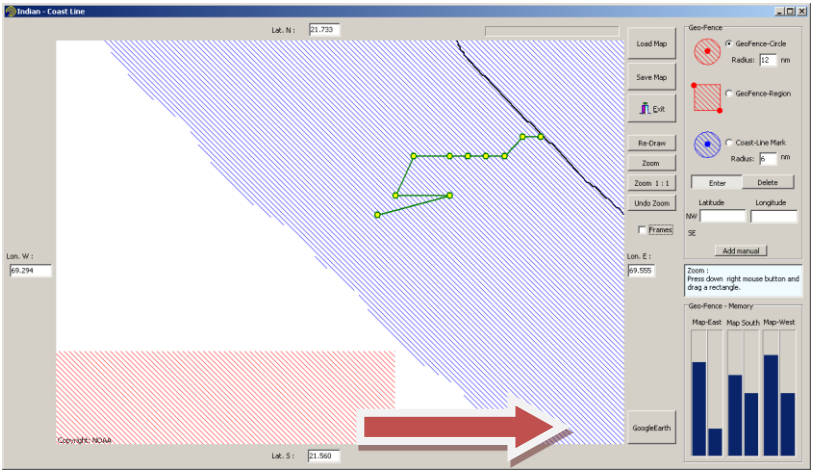


Here you see the dotted lines for proximity function (blue) and dotted lines and rectangle regions for the geofencing (red). You can turn on and off the "Frames" of the dots and rectangles. If you turn them off, the chart looks more convenient. For redrawing of the map please use the button "Re-Draw".



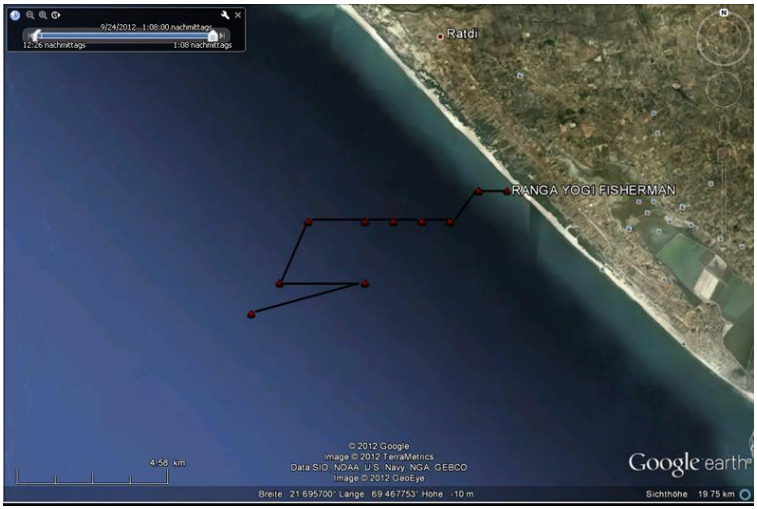
7.6.2 GPS-Track

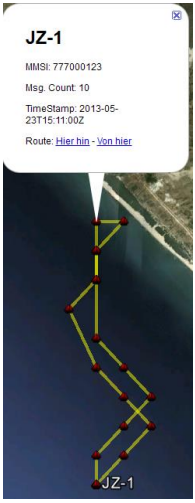
If there was a Track down loaded before, it will be shown automatically.



The green dotted line is the track. If you have Google Earth(TM) installed on your PC, you can click on „Google Earth" button for showing the track in Google Earth:

With the time slider you can show the track in a movie. When you click on the symbols you get information about the date and time stamp of the AIS-P message.

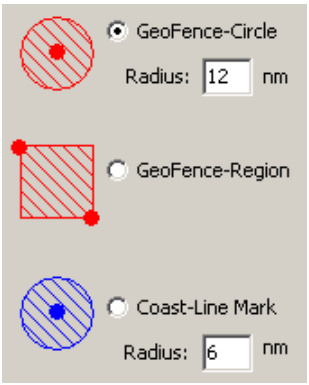


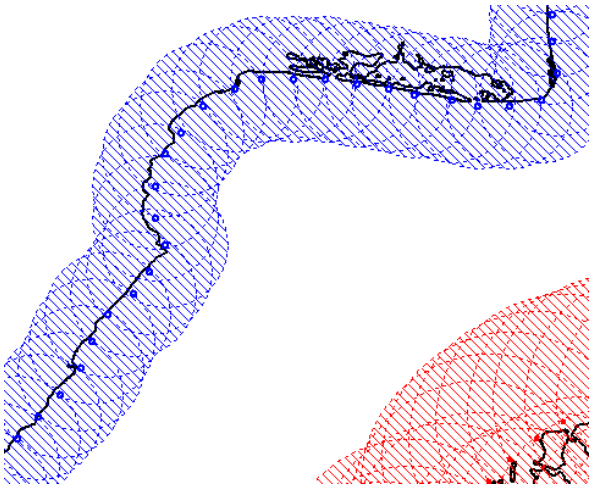


7.6.3 Drawing-Tools

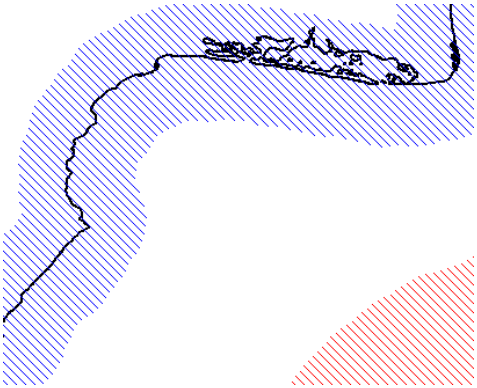
This program gives you all tools to generate the geo-data, which are used by the vmsTRACK-PRO later.
Here you see the basic elements, which are used for drawing.

The blue dots are used for marking the Malaysian coast line. You are free to place dots. The only limit is the memory space. A good choice (trade-off between memory allocation and coast line approximation is using a dot every 3 nautical mile.
For geo-fence areas (red shapes) you can use dots or rectangles.



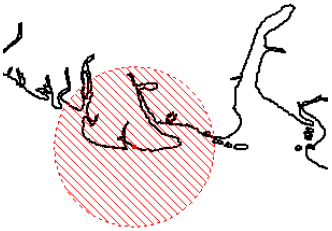


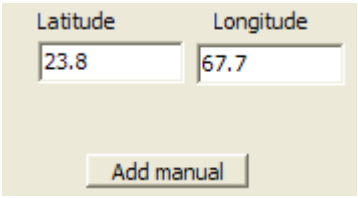
Here is an example of the coastline drawing with dots. When you turn off the frames, you get the following picture:



A chain of dots allows a very precise definition of a coastal zone.

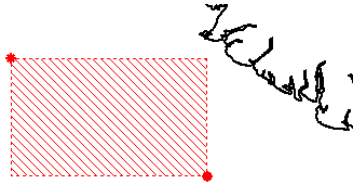
You also can create a dot by entering the latitude and longitude manually and then clicking on "Add manual":

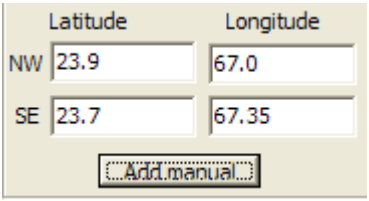




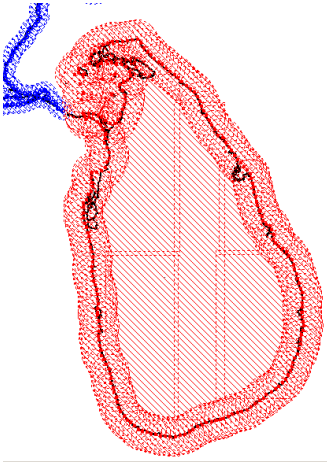
Geofence regions, that have a rectangular shape, will be entered by two pairs of coordinates. It is the North-West corner (upper left) and the South-East corner (lower right).

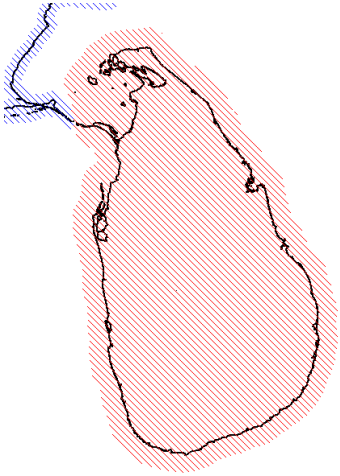
Here you can define this rectangle by "mouse click and drag" or by typing the lat and lon values:



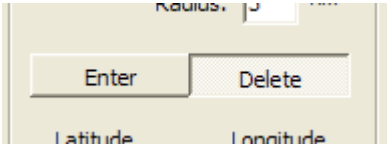


With the geofence areas you also can combine dots and rectangles, see following example:

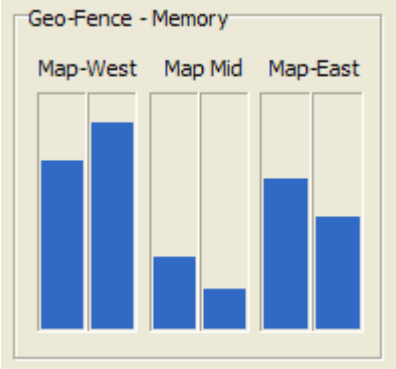




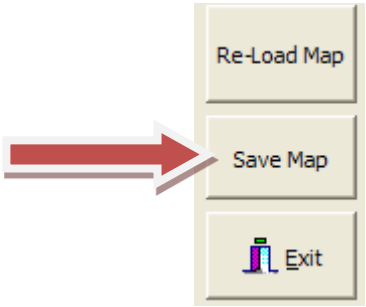
For deleting dots or regions press down the button “Delete” and then drag with the left mouse a rectangle over the elements you want to delete.



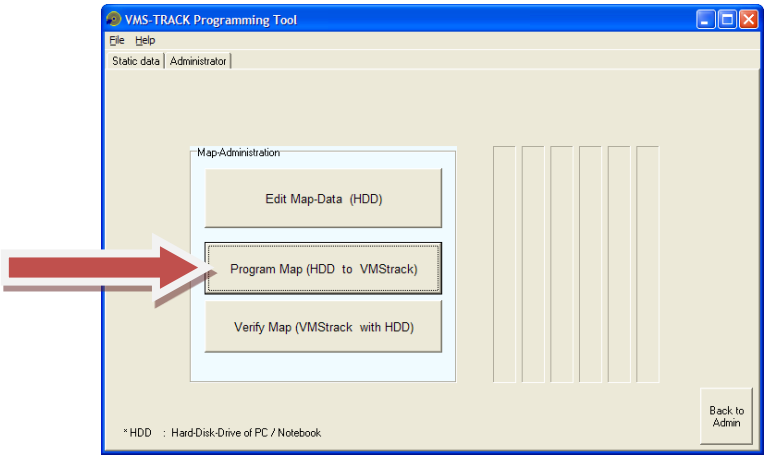
The following diagram gives the status of the used memory of each map page.



7.6.4 Save Map (Coastline / Geofence)

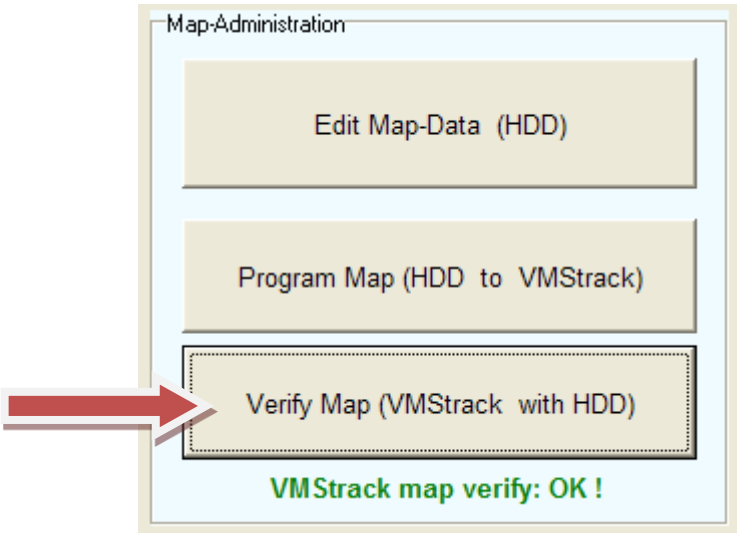


At the end you have to save the map drawing. Press on “Save Map” and choose a name for the map. If you want to revert the currently made changes, just press on "Re-Load Map". Keep in mind, that the map is stored on PC hard disk and not into the vmsTRACK-PRO. For programming the map into the vmsTRACK-PRO click on "Program Map":

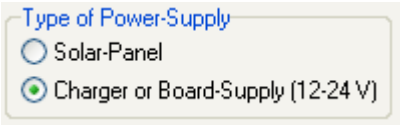


7.6.5 Verify Map (Coastline / Geofence)

If you want to check, whether the map stored in the vmsTRACK-PRO is identical to the map on the HDD (PC, Laptop), you just click on "Verify Map" and select the map file. The result will be shown like the following figure:

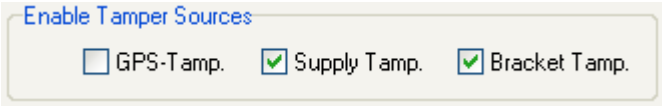


7.7 Type of Power-Supply

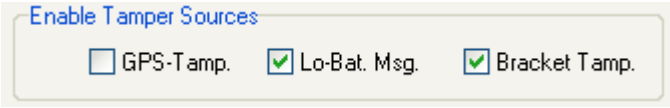


With these two settings you can define how the unit shall be charged or powered. When you have a solar panel attached, the unit will be charged by this means. Otherwise you have to select "Charger or Board-Supply (12-24V)". The main difference between these two settings is, when the device was turned off due to low battery, then it restarts in transmission mode (solar panel) or it will start in charge-only mode (Charger or Board Supply).

7.8 Tamper Sources



or

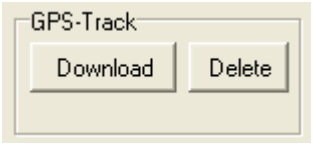


There are three tamper sources selectable.
First the GPS-Tamper means if somebody shields the vmsTRACK-PRO in that way, that the internal GPS-receiver is not able to get satellite signals. In that case the shore station will be informed about that manipulation.

Second the "Supply Tamper" means if somebody removes the supply voltage (i.e. cutting the supply cable), the vmsTRACK-PRO will inform the shore station about that ("Power Tamper" bit in **Fehler! Verweisquelle konnte nicht gefunden werden.**). This is possible because the vmsTRACK-PRO has got internal rechargeable batteries. If you have a solar panel attached, a "Lo-Bat. Msg." will be transmitted, when the capacity of the battery goes below 50%.

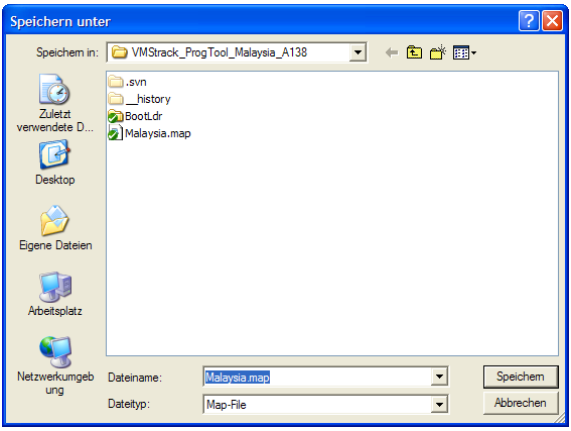
Third the "Bracket Tamper" can be de- / activated here. The Bracket Tamper is described in detail in chapter 7.3.

7.9 GPS-Track Download



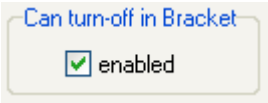
The vmsTRACK-PRO has got an internal memory where the track of the vessel is stored together with a time stamp. Every

half nautical mile a track-point is stored. So a track of more than 8192 points (= ca. 4000nm.)* can be stored. When the memory is full or older than 1 year, the oldest track points will be overwritten.
Alternatively, you can delete the track by pressing the "Delete" button.
When clicking on the "Download" button, the vmsTRACK-PRO responds with the GPS-track information and you will be asked to store this to a "Map" file. Please choose the appropriate map file.
* = depending on modal type



For viewing the track please see chapter "Maps".

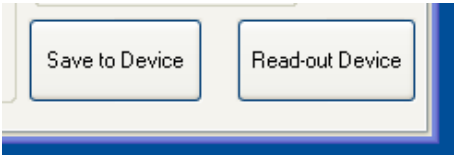
7.10 Switching-off in Bracket



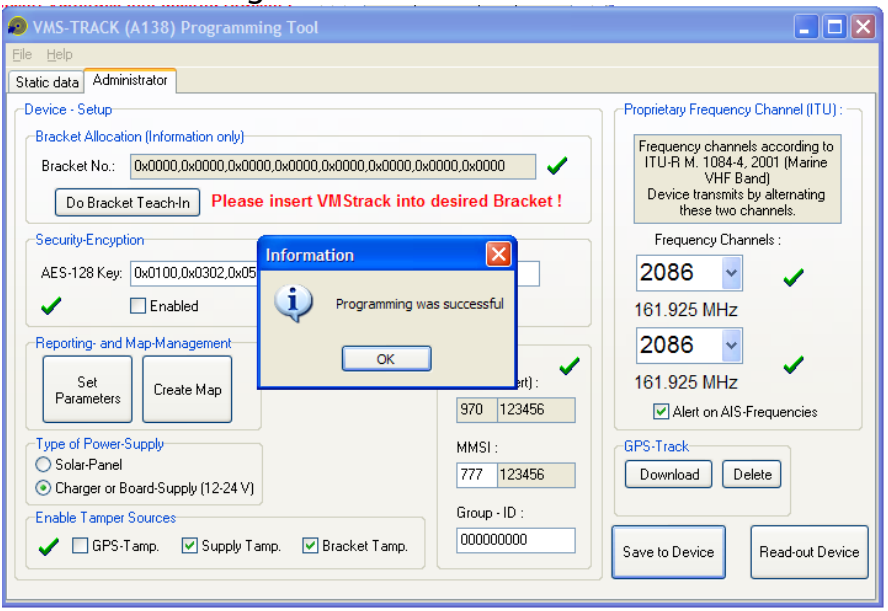
With this setting you can decide, whether the user can turn-off the device when it is inserted in the tamper-bracket, or not. This is useful, when the vmsTRACK-PRO is required to

send all the time. You can always turn-off the unit outside the tamper-bracket.

7.11 OK- and Cancel Button

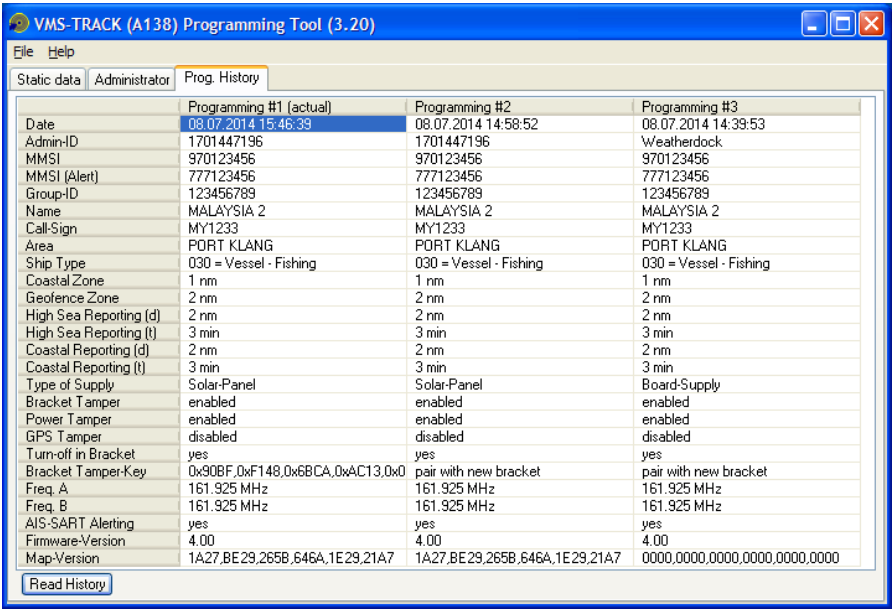


For programming and setting up the vmsTRACK-PRO device, you have to press the "Save..." button. All the settings, which were made in the "Administrator" page, will be stored into the vmsTRACK-PRO and double checked again. You will see that with the green marks.
If you want to discard the changes you made on the Administrator page, just press on the "Read-out..." button. The current settings will be downloaded from the device.



7.12 History of Programming

The vmsTRACK-PRO stores the last three programming sessions.
A programming session means, that the vmsTRACK-PRO is inserted into the Programmer and changes are made as described above. During a session you can save multiple times without wasting the three storages! As soon the vmsTRACK-PRO is removed from the programmer and the unit switches off, then the session has finished.
On the page "Prog. History" you can show up the details of the last three programming sessions by pressing "Read History":

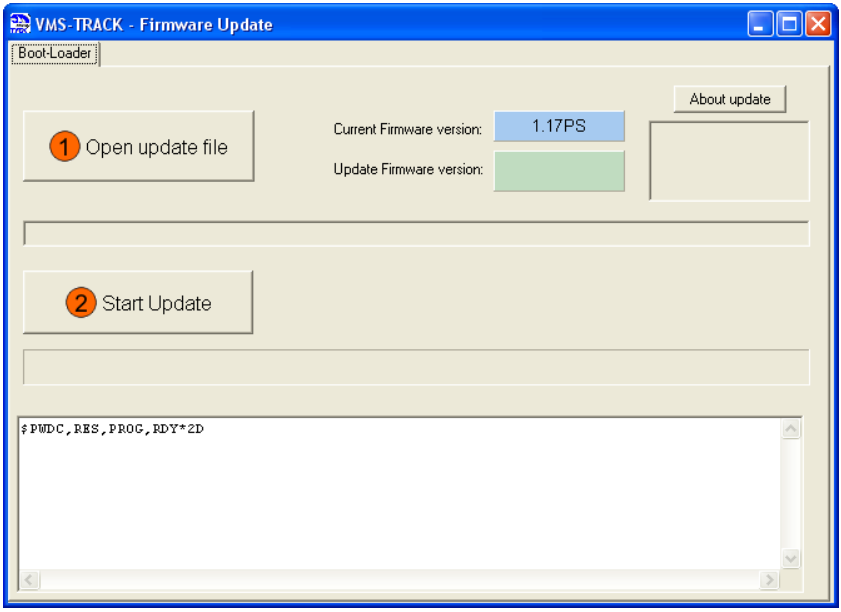


	Programming #1 (actual)	Programming #2	Programming #3
Date	08.07.2014 15:46:39	08.07.2014 14:58:52	08.07.2014 14:39:53
Admin-ID	1701447196	1701447196	Weatherdock
MMSI	970123456	970123456	970123456
MMSI (Alert)	777123456	777123456	777123456
Group-ID	123456789	123456789	123456789
Name	MALAYSIA 2	MALAYSIA 2	MALAYSIA 2
Call-Sign	MY1233	MY1233	MY1233
Area	PORT KLANG	PORT KLANG	PORT KLANG
Ship Type	030 = Vessel - Fishing	030 = Vessel - Fishing	030 = Vessel - Fishing
Coastal Zone	1 nm	1 nm	1 nm
Geofence Zone	2 nm	2 nm	2 nm
High Sea Reporting (d)	2 nm	2 nm	2 nm
High Sea Reporting (t)	3 min	3 min	3 min
Coastal Reporting (d)	2 nm	2 nm	2 nm
Coastal Reporting (t)	3 min	3 min	3 min
Type of Supply	Solar-Panel	Solar-Panel	Board-Supply
Bracket Tamper	enabled	enabled	enabled
Power Tamper	enabled	enabled	enabled
GPS Tamper	disabled	disabled	disabled
Turn-off in Bracket	yes	yes	yes
Bracket Tamper-Key	0x90BF,0xF148,0x6BCA,0xAC13,0x0	pair with new bracket	pair with new bracket
Freq. A	161.925 MHz	161.925 MHz	161.925 MHz
Freq. B	161.925 MHz	161.925 MHz	161.925 MHz
AIS-SART Alerting	yes	yes	yes
Firmware-Version	4.00	4.00	4.00
Map-Version	1A27,BE29,265B,646A,1E29,21A7	1A27,BE29,265B,646A,1E29,21A7	0000,0000,0000,0000,0000,0000

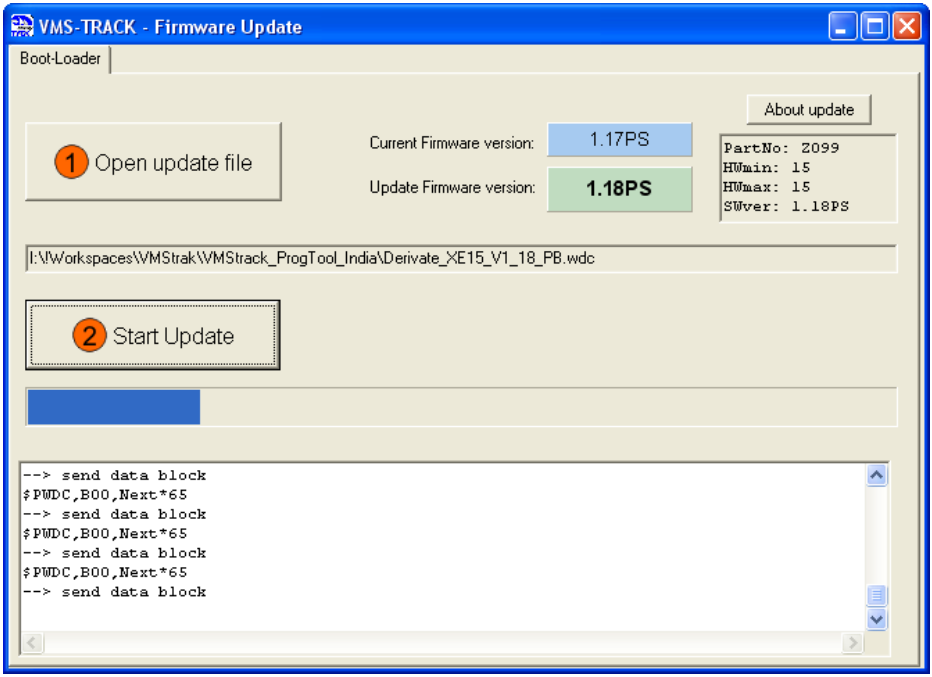
7.13 Firmware Update

With that Programming-Tool you have got also the possibility to update the vmsTRACK-PRO firmware. This is called “boot load”.

When you got an update file from the distributor or manufacturer of the vmsTRACK-PRO, you have to store it on PC or notebook.
The update files have always the extension “.wdc”.
Tor updating just insert the vmsTRACK-PRO into the programmer and wait until the white LED is the only one, which is on.
Then you choose the COM port and click on the menu-bar “File -> Update”.
You will see the following window:

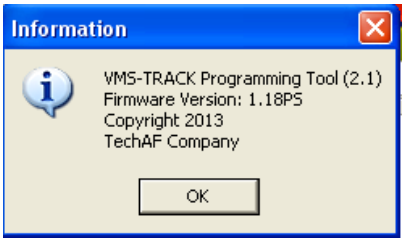


With the button (1) you select the update file and with the button (2) you start the update process.
This process takes some time, so do not interrupt this process until it is finished.
If you interrupt, the device will not work anymore and you have to do the update again.



When finished the vmsTRACK-PRO re-boots, so you have to wait until the white LED is the only one which is on.
If you are asked to reprogram the, confirm with "yes".

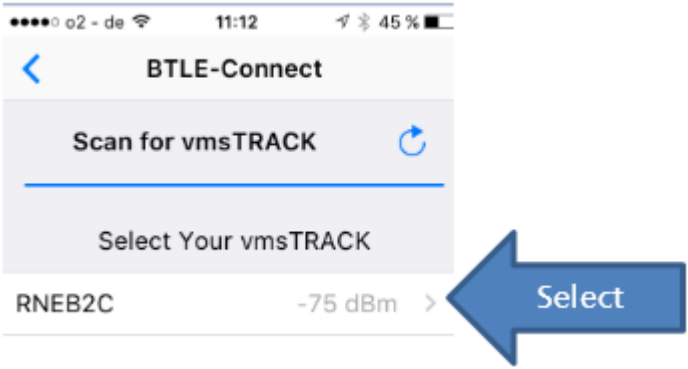
Pressing on “Help” at the menu bar, you can double-check the actual firmware version of the vmsTRACK-PRO:


Information
VMS-TRACK Programming Tool (2.1)
Firmware Version: 1.18PS
Copyright 2013
TechAF Company
OK

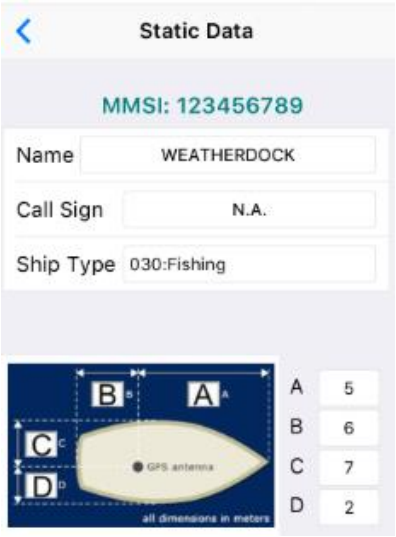
7.14 Setup with "vmsTRACK-PRO User" - App

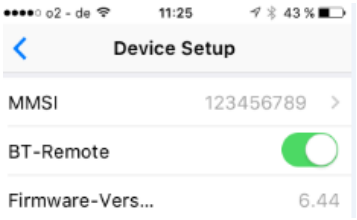
The user can also use the Smart-Phone App (iOS or Android) to program limited parameters.
To connect to vmsTRACK-PRO please follow these steps exactly:

1. vmsTRACK-PRO must be turned-off. Bluetooth of Smart-Phone must be switched off!
2. Press the ON-button of vmsTRACK-PRO long time, until the unit beeps three times.
3. Switch on Smart-Phones Bluetooth
4. Start the "vmsSETUP" – App and goto "Connect".
5. Click on "Scan for vmsTRACK".
6. When device appears in list, select this:



7. Smart-Phone will start connecting to the device.
8. Go to "Static Data" to change static parameters.
9. Go to "Device" to change MMSI and select the "BT-Remote option" (see 9 "vmsREMOTE - App)
10. Go to "Map Management" to select your country.
11. Go to "GPS Track" for read out the stored track (is only working, when the right country was selected before using the vmsTRACK-PRO. (see also 7.6.2)





The parameter, which can be setup by the user are:

- MMSI (one-time only!!)
- Ship-Name
- Call-sign
- Dimensions (GPS antenna position)
- Ship-Type
-

For further information, see also Apple Appstore or Google Playstore.

8 Carrying bag

8.1 Inserting the device

Open the bag

Insert the vmsTRACK-PRO

Close the back. Take care the you can see all LED´s

8.2 Attach bag at arm

weather dock

9 Remote Control by Smartphone*

* = optional feature, depending on modal type (Bluetooth needed)

9.1 "vmsTRACK-PRO Remote" - App

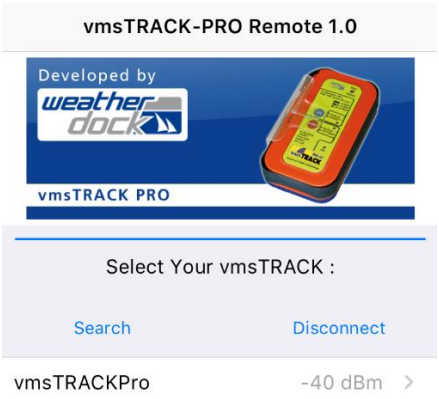
The vmsTRACK-PRO can be controlled with the vmsREMOTE App on a smartphone. It is possible to check the status of the unit (GPS-fix, GEO-Fence alert, Bracket alert and Manual alert). You can also change the unit from the on-mode to alert-mode.

This application is available in the App-Store and Google Play.

9.1.1 Connection

To connect your smartphone with the vmsTRACK-PRO at first switch off the Bluetooth of your Smart-Phone!! Turn on the vmsTRACK-PRO until the yellow LED is blinking. Then activate your Bluetooth at the smartphone and then start the App.

To find your unit please click on "Search" and choose your unit by clicking on its name or identifier.

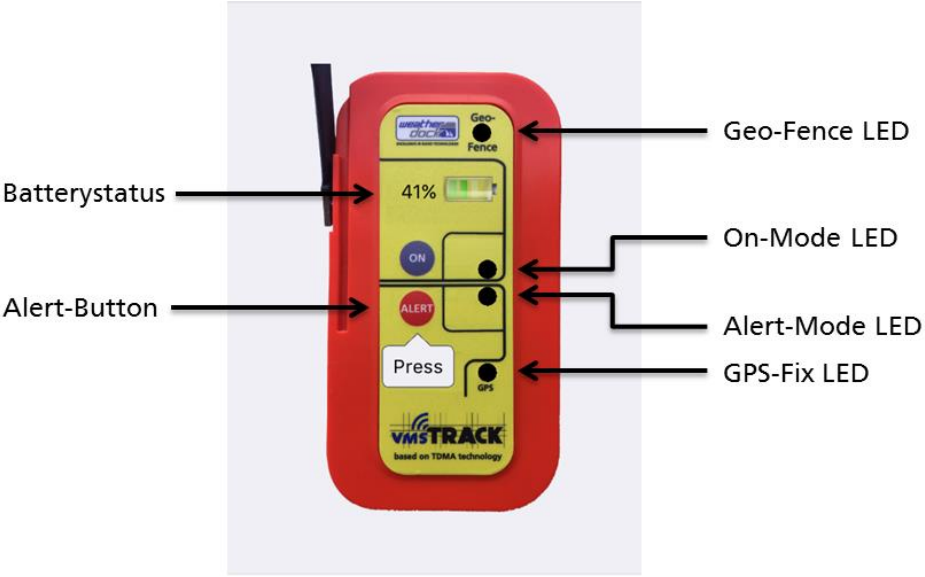


Sometimes it is necessary before starting the app to turn off and on the Bluetooth of the smartphone.

9.1.2 Device status

After a successfully connect you will automatically see the device on the smartphone app. The LED´s show the actual status of the unit. The status is updating all the time.
The app is also updating when the smartphone is in standby.

When you leave the range of Bluetooth (ca. 20 meter) it will lose the connection to the device. In most cases the connection is re-established automatically (depending on the smartphone manufacturer and operating system)



9.1.3 Geo-Fence Alert

The unit always check the position. If the unit is in a Geo-Fence area, it will show you an alert signal. You can hear an alarm siren from your smartphone, too.

The alert will stop when the vmsTRACK-PRO leaves the Geo-Fence area.

Geo-Fence ALERT

9.1.4 Activate the Alert-Mode

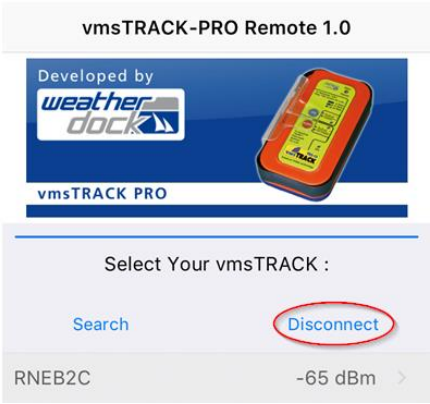
To change in alert mode please click on the ALERT button in the App. Of course you can go back to on-mode by clicking on the "ON-Button"

To know what happened in Alert mode please see: ***3.2 Activation "ALERT"***

9.1.5 Disconnect

It is important to disconnect the smartphone from the device correctly. If you don´t do this it could cause some troubles by the next connection!

To disconnect correctly go to the “Connect” part and click on “Disconnect”:



10 Technical Data

Parameter	Value
Dimension	130 x 40 x 70 mm
Weight	380 g
DC supply	rechargeable Li-Ion-batteries
Frequency	Locating object locating: Marine band programmable by distributor : 155.450 ... 162.025 MHz (contact local authority for frequency assignment)
Radiated Power	1 W e.i.r.p. (typ.)
GPS receiver	Approved to IEC 61108-1
VHF-Antenna	extended, vertical polarized
Operating time (normal operation)	100-180 hours with fully charged batteries Depending on reporting interval and interface setup
Operating time (alert)	min. 36 hours with fully char. bat.
Battery storage (fully charged)	min. 3 month without significant loss of charge
Operation temperature range	-10°C to +55°C
Storage temperature range	-30°C to +70°C
Geofence/Coastline-Memory space	3000 points
Geofence/Coastline resolution	0.5 nautical mile
GPS track storage	256 (or 1024 vmsTRACK-PRO) points
Display	3 LEDs and a "Flash"-LED
Activators	2 buttons

Parameter	Value
Standards	IEC 62287-1 (CSTDMA), IEC 61097-14, IEC 60945, ITU-R M.1371-5, IMO Res. MSC.246(83), IEC 61108-1 Bluetooth LE Module: FCC IDENTIFIER: T9JRN4020 Bluetooth SIG: D023145
Supported AIS messages	Msg. 1, Msg. 18 AIS Positions Report. Msg. 5, Msg. 24A/B AIS Static Report. Msg. 27: S-AIS Msg. 14: (SART) Alert Message Msg. 8, Msg. 25: AIS Encrypted Message.
Environment	Waterproof: Down to 10m water level Exterior Finish: Highly visible yellow Compass safe distance: 80cm Mechanical shock Drop into water: 20 m Drop on concrete surface: 1m Thermal shock Temperature difference: 45 K Resistance Oil, seawater and sun light resistant

11 Declaration of Conformity

EC DECLARATION OF CONFORMITY

We: **Weatherdock AG,**
Sigmundstrasse 180, D-90431 Nürnberg

declare under our sole responsibility that the products

Name and Type	vmsTRACK-PRO (AIS transponder for VMS tracking using AIS-Class B CSTDMA and DSC, with GPS

provides equivalent functionality to the following standards, except that it is optimised for transmission from onboard of small vessels at sea

EU Council Directive	Directive 2014/53/EU RED	
Testing standards	• IEC 60945 (2002) incl. IEC 60945 Corr. 1 (2008) • IEC 61097-14:2010 • IEC 62287-1:2013 Clause 11, 12 • IEC 60950-1:2006, IEC 62479:2010 • IEC 301025 V2.1.1 (V1.5.2) • IEC 61108-1:2003	
Name, Address of manufacturer	Weatherdock AG, Sigmundstrasse 180, D-90431 Nürnberg	
Additional standards or certifications	• USCG • FCC	• ATEX II 3G IIB T6
Notified Body	• Notified Body 0700, Phoenix Testlab	
CITC	• RI1111 "Specification for Automatic Identification System (AIS) Equipment"	

Usage:
The intended usage of the vmsTRACK is to provide locating and monitoring

Technical Construction File:
The technical construction file for this product is held by Weatherdock AG

On behalf of Weatherdock AG

Alfred Kotouczek-Zeise, CEO
January 27th, 2017

Jürgen Zimmermann, CTO
January 27th, 2017

12 Box contains

- vmsTRACK-PRO transmitter, fully functional
- Manual

13 Available accessory

- Tamperproof & Power Bracket, A122
- Power Bracket (Charger), A121
- Dongle, B084
- easyRX2S (vmsTRACK-PRO receiver), A174
- VHF antenna
- Bag, B066

Please contact specialized distributors.

14 FAQ

Problem	Reason	Solution
Device can't be activated	Battery is empty	**Recharge the Li-Ion batteries only with the charger station for the vmsTRACK-PRO**
No GPS-Fix	Interference	**To ensure you have the best possible GPS reception, make sure that your device has a clear line of sight to the sky.**
Unit does not charge	Bad connection	**Clean the unit with clear water at the backside and make sure that the unit placed correct.**
Device can not connect to smartphone via Bluetooth		**Make sure that Bluetooth is switched on at the smartphone and that your vmsTRACK-PRO has Bluetooth (*1.1 Optional features)*. Shut down your smartphone and the vmsTRACK-PRO and try it again.**

15 Warranty

This Weatherdock AG product is warranted to be free from defects in materials or workmanship for 24month from the date of purchase. Within this period, Weatherdock AG 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 AG 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 AG 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.

16 Contact

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17 Notes