USER MANUAL

SEAANGEL

Model: SA14-SART

Document version:

Date	Revision	Responsibility	Reason for Change
2014-10-13	1.0	POT	Document created
2015-01-27	1.1	POT	Formatting optimized
2015-02-12	1.2	POT	Added declaration of conformity

Scope:

This revision of the user manual is intended for the following firmware, software, and hardware versions (model: SA14-SART), as well as for newer versions, unless stated otherwise on the SEAANGEL website www.seaangel.at:

Date	Firmware
13.10.2014	1.2.16

Date	Hardware
13.10.2014	V03

SEAANGEL:

SEAANGEL is the name of a product family produced by FT-TEC GmbH, which covers a wide variety of emergency systems for maritime applications. The individual products will be distinguished according to their product model version. If the term SEAANGEL appears in this user manual, it refers to the model SEAANGEL SA14-SART, unless stated otherwise.

Subject to technical changes and printing errors.

All figures are sample images.

Table of contents

1   About this guide

Read the safety instructions carefully before use. Observe the warnings in the manual.

Always keep the manual within reach. If you sell or give away this device, please be sure to include this manual.

Symbols used in the text:

This symbol indicates potential personal injury hazards or risks to your health.

This symbol indicates important information.

This symbol indicates actions which may damage the product and other property.

2   Safety instructions

THE SEAANGEL DOES NOT WORK PROPERLY WITHOUT AN ANTENNA. NEVER USE THIS DEVICE WITHOUT AN ANTENNA.

THE WARRANTY IS VOID IF THE ANTENNA IS REMOVED FROM THE DEVICE, REGARDLESS OF WHETHER IT WORKS AFTER BEING REPLACED OR NOT.

ONLY ACTIVATE THE EMERGENCY OPERATION IF YOU ARE ACTUALLY IN DANGER. MISUSE MAY LEAD TO CRIMINAL PROSECUTION.

BE CAREFUL OF THE FLASH LED, IT MIGHT BLIND YOU.

The battery pack consists of lithium manganese dioxide (LiMnO$_2$) batteries. The capacity of the batteries is influenced by the ambient temperature. Protect the device from direct sunlight and excessive temperature fluctuations in order to avoid shortening the device's lifespan. Only operate the device within the specified temperature range of -20 °C to +55 °C to prevent malfunctions.

When in operation, the SEAANGEL emits electromagnetic waves. As a result, sensitive electronic equipment and even your ship's compass could be interfered with. Make sure that the device is used with keeping a proper distance from sensitive equipment.

Avoid any unnecessary mechanical stress (shocks, impacts) to avoid damaging the casing or antenna. Full functionality cannot be guaranteed otherwise.

The device is designed for the maritime industry. It is not intended to be used on land and could cause damage to other electronic devices.

3 Overview: FT-TEC SEAANGEL

3.1 Introduction

Your new FT-TEC SEAANGEL SA14-SART is an advanced AIS search and rescue transmitter that can save your life. The device transmits your exact GPS position via AIS technology to a PC/notebook or chartplotter. This makes it easier to find a person in distress, and thus significantly increases the chances of survival. Since emergency messages are sent as standardised messages, all ships and aircraft/helicopters located in reception range with AIS on-board can participate in the rescue operation.

Figure 1: SEAANGEL SA14-SART

In this guide, there are images which may show only part of the SEAANGEL in order to focus your attention on a specific part of the product. It may happen that the device is depicted without the antenna fitted. Please do not let this confuse you. Do not attempt to remove the components of your SEAANGEL, unless expressly ordered to do so.

3.2 The essential features at a glance

Supports AIS channel 1 and channel 2 (161.975 MHz / 162.025 MHz)
Transmission power ≈ 1 W
Transmission range 5 NM[1] (depending on swell and receiving antenna height)
Integrated GNSS receiver with support for GPS, QZSS, GLONASS and BeiDou, 72 channels, built-in antenna
Compact size (138 mm x 65 mm x 25 mm excl. antenna and optional mount)
Status LEDs
Minute-by-minute position update
Battery life of more than 96 hours of broadcast time after activation, even under extreme environmental conditions.
5 year battery life (without emergency activation)
Automatic and manual activation by: - Ripcord mechanism - Contact with water - Button
Operating temperature : -20 °C to +55 °C
Waterproof to 10 m (IPx7)
LED flash to improve detection in the dark
Easy to use

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[1] NM = Nautical mile = 1852.216 m

4 Short description of AIS

4.1 What is AIS?

AIS stands for *Automatic Identification System* and is a communication system that uses self-organising time slot process on registered channels in the maritime mobile VHF band (161.975 MHz and 162.025 MHz). It is based on an open, unencrypted protocol which allows data to be sent or received autonomously, without the interaction of marine and operator personnel. In addition to the autonomous mode, there are also options which allow short, safety-related messages to be sent using human interaction.

Data that is autonomously generated and transferred to other vessels or to the mainland via broadcast, are dynamic data such as position, speed, and direction, as well as static and voyage related data such as depth or type of ship. Transmissions are made at regular intervals, the frequency interval of the speed and course of any change depends on the respective vessel. This data is processed by the receiver and can be generally displayed on an Electronic Chart Display and Information System (ECDIS). Current position data is referenced geographically with the respective ship identification of the received AIS stations, and displayed on a digital map.
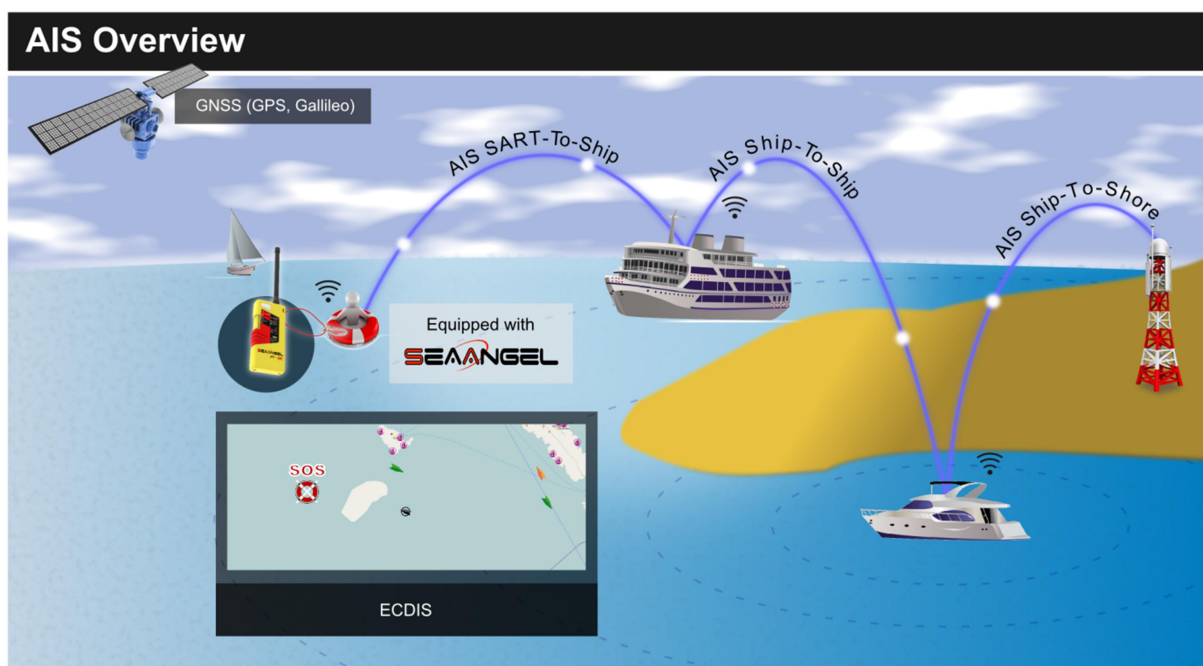

Figure 2: The AIS network

Using AIS makes navigation at sea safer and protects the environment by preventing accidents with the aid of special support navigation tasks. AIS was adopted by the *International Maritime Organization* (IMO) as a binding standard in 2000. Since 2002, there has been a carriage requirement for all ships that meets the following criteria:

- All ships above 300 GRT[2] gross tonnage engaged in international journeys
- All ships above 500 GRT gross tonnage engaged in national journeys
- Ships longer than 20 m
- Ships with more than 50 passengers on board

4.2 Transmission modes

4.2.1 Ship-to-Ship

In this mode, information is exchanged between ships. This is done fully autonomous.

4.2.2 Ship-to-Shore

In Ship-to-Shore mode, the ship communicates with a base station on land. This mode is primarily for coordinating and regulating marine traffic.

4.2.3 SART-to-Ship

AIS-SART devices are pure transmission units which only transmit information in one direction.

4.3 What is an AIS transponder?

Data is transmitted using an AIS transponder. This features the following components:

- GNSS receiver (used to determine the position of your ship)
- Processor and memory (intelligence of the transponder)
- Power supply
- Antenna (VHF and GNSS)
- 2-channel VHF transmitter/receiver (for transmitting and receiving AIS messages over the radio),

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[2]Abbreviation for Gross Register Tonnage. 1 GRT = 100 cubic feet = 2.8316846592 m³.
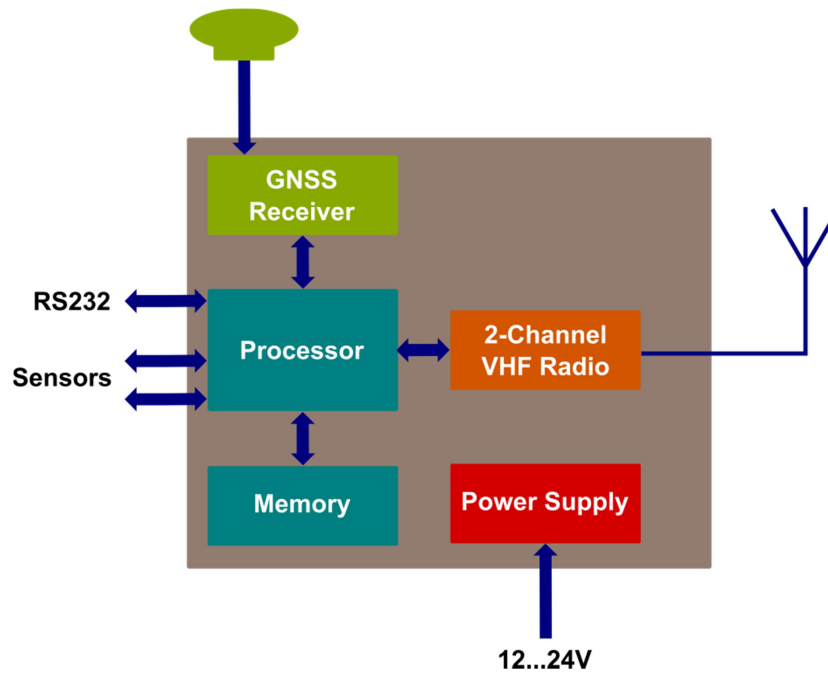
Figure 3: Schematic representation of an AIS transponder

4.4   Transponder classes

Essentially there are two classes that can be distinguished:

- Class A: Use in commercial shipping
- Class B: Use in recreational boating

Put simply, these two classes access the AIS network using different methods; Class B can only transmit if there are enough free time slots available. Thus, Class A devices have higher priority over Class B. Depending on the class, up to 27 message types are supported. Further information can be found in Rec. ITU-R M.1371-4 (04/2010)[3].
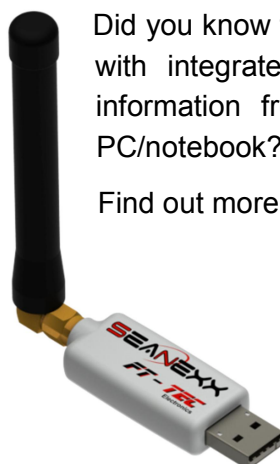
Did you know that the FT-TEC produces the smallest USB AIS receiver with integrated GNSS in the world, which allows you to receive information from your SEAANGEL SA14-SART and view it on a PC/notebook?

Find out more by visiting www.seanexx.at

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[3] http://www.itu.int/rec/R-REC-M.1371

4.5 Functions of the FT-TEC AIS SEAANGEL SA14-SART

The SEAANGEL SA14-SART does not contain a VHF receiver and therefore cannot be assigned to either of the two transponder classes. Its function is limited to sending emergency signals, transmitting message type 1 and 14 as defined in Rec. ITU-R M.1371-4 (04/2010) at periodic intervals alternately on the two VHF channels. Once the device is activated, it works completely autonomous.

When activated, the emergency rescue transmitter initiates a rescue chain which all ships, aircraft, and helicopters can participate in as long as they have AIS on board and are within the transmission range.

The device generally supports two operation modes:
1. Test operation
2. Emergency operation

Your device will undergo self-tests at regular intervals (once a year) as part of the test operation. This serves to ensure the correct functioning of the device during its entire period of use. Emergency operation is used, as described above, for sending emergency signals. More detailed information on the functionality of the SEAANGEL and its respective modes of operation can be found below.

PLEASE REMEMBER THAT MISUSING THIS EQUIPMENT MAY RESULT IN CRIMINAL PROSECUTION.

The emergency signal is transmitted via VHF. The range of these systems is limited by technological restrictions. The successful transmission of the emergency signal depends primarily on whether a ship ready to receive is in your area. The higher the antenna is mounted above the water level, the greater the range it has.
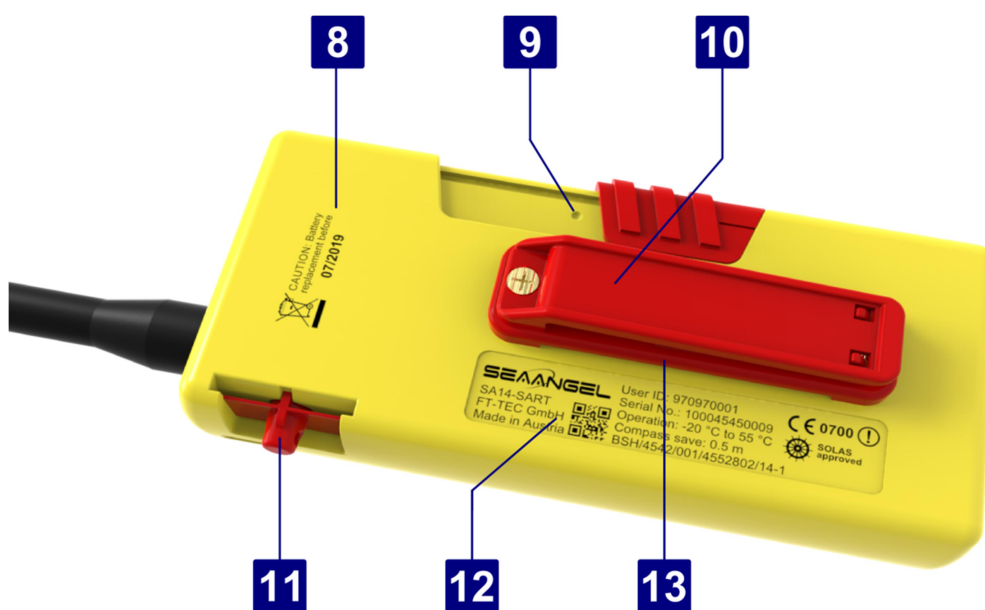
5 SEAANGEL components

1	Antenna
2	LED flash
3	Safety slide
4	Water contacts
5	Carabiner
6	Ripcord
7	Keypad
8	Battery expiry date
9	Snap point
10	Belt clip
11	Ripcord (without cord)
12	Device specification
13	Belt mounting plate
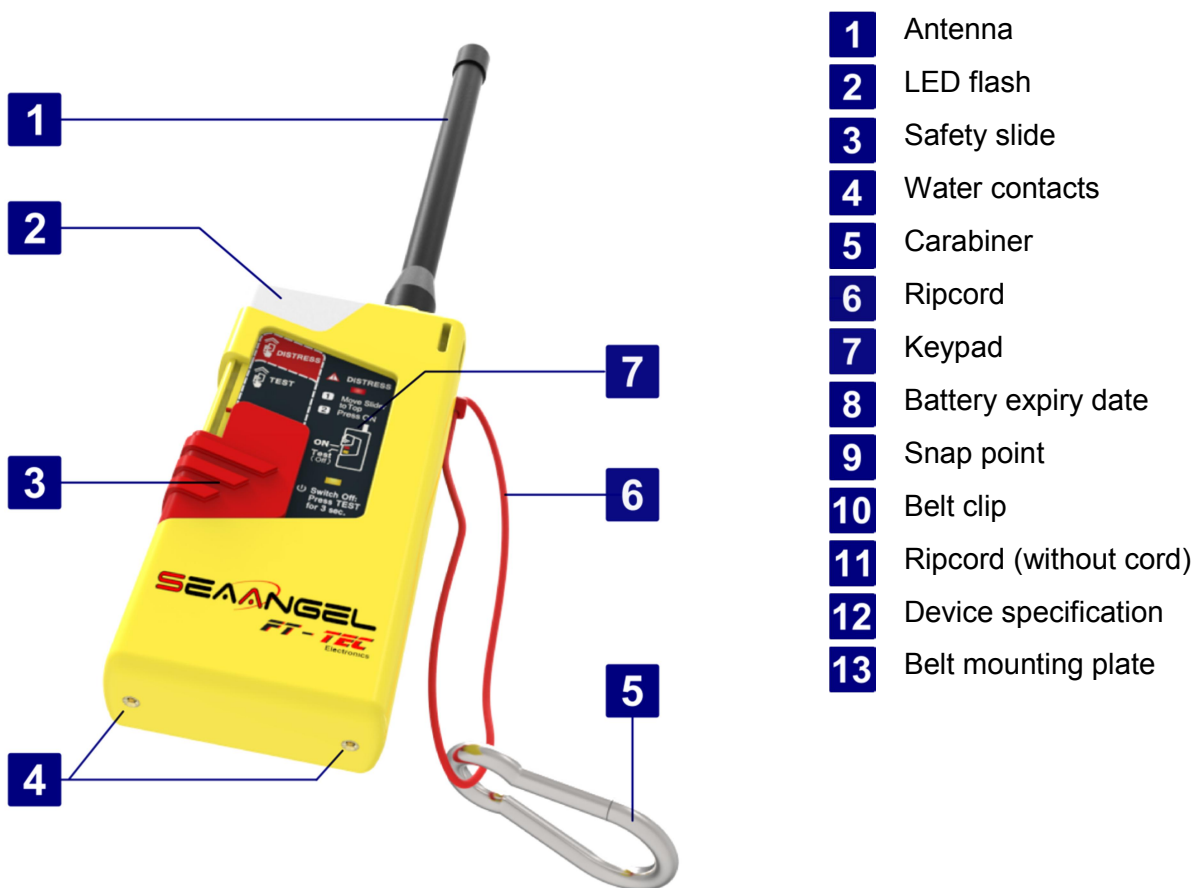
Figure 4: Description of individual components
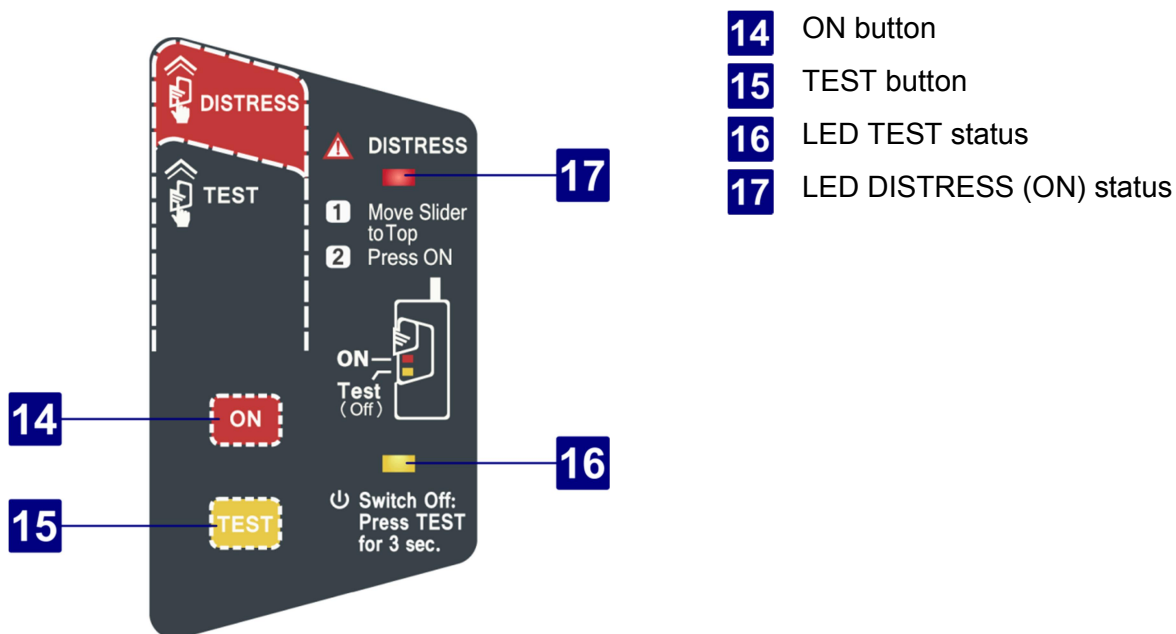
Figure 5: Description of keypad

14	ON button
15	TEST button
16	LED TEST status
17	LED DISTRESS (ON) status

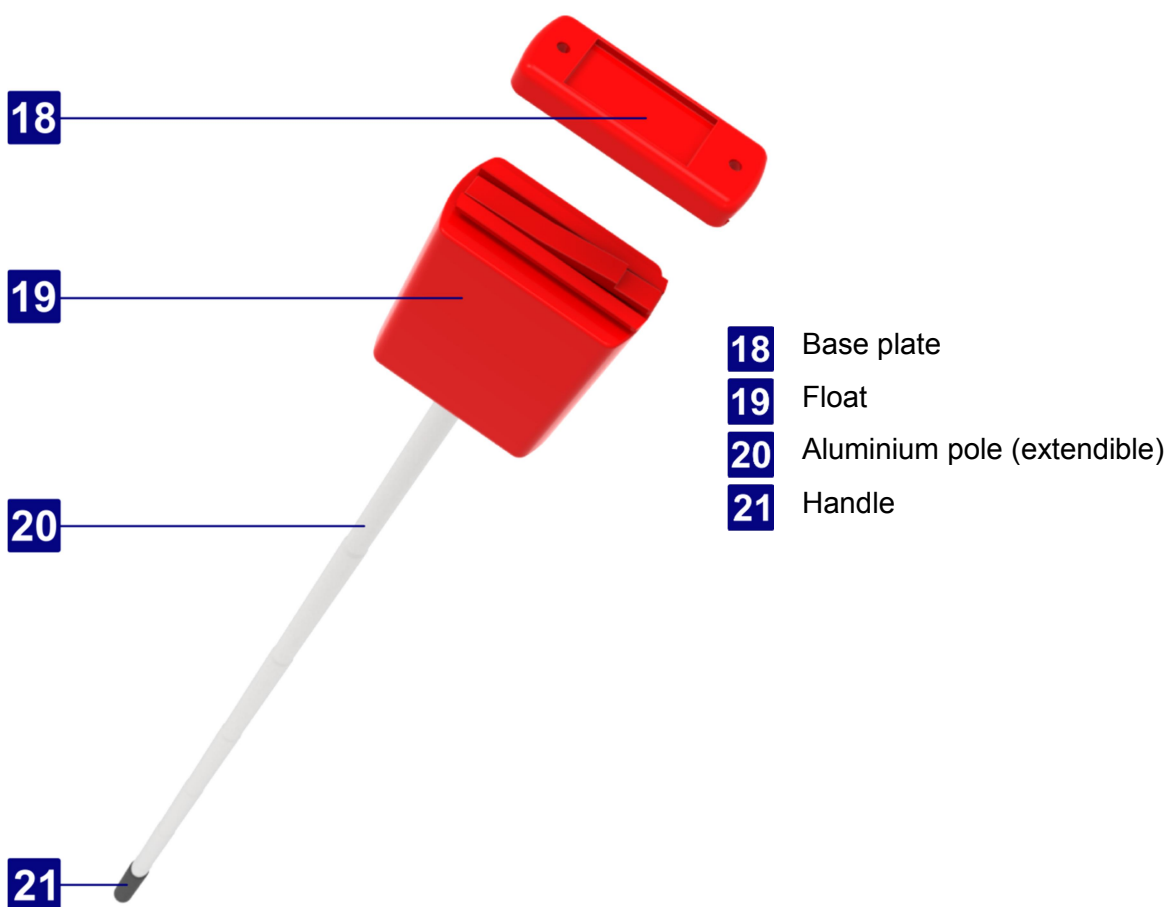| 18 | Base plate |
19	Float
20	Aluminium pole (extendible)
21	Handle

Figure 6: Description of telescopic pole

6 Product specifications

6.1 Technical information

Product name:	FT-TEC AIS SEAANGEL
Model:	SA14-SART
Size (LxBxH):	138 mm x 65 mm x 25 mm
Weight (without telescopic pole):	190 g
Power supply:	9 V LiMnO$_2$ Industry cells[4], CR123
Transmission frequency:	- AIS channel 1 (161.975 MHz) - AIS channel 2 (162,025 MHz) - Channel frequency alternating
Transmission power:	approx. 1 W
Transmission antenna:	Vertically polarized
Transmission range:	5 NM
Integrated GNSS receiver:	- GPS, QZSS, GLONASS and BeiDou (simultaneous reception possible) - Navigation sensitivity: -167 dBm - integrated antenna - 72 channel - Position information updated once a minute
Supported AIS messages:	- Message 1 (position report) - Message 14 (safety related broadcast message)
Message interval:	Burst (8 message a minute)
Transmission time:	Min. 96 hours after emergency activation, even in extreme conditions
Battery life:	5 years (self-drain and annual self-tests, without emergency activation)
Self-test:	Required once a year
Maintenance interval:	After emergency activation or after 5 years (at the latest)
Protection class:	IPx7
Storage temperature:	-30 °C to +70 °C

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[4] Lithium manganese dioxide

Operation temperature:	-20 °C to +55 °C
Status LEDs:	Colour: Red and orange
LED flash:	Colour: White

Casing:	Material: PC-ABS
	Colour: Yellow (casing shell)
	    Red (safety slide, belt strap)
	    Translucent white (LED flash covering)

The prescribed maintenance and annual self-test will be referred to several times in the following sections.

Maintenance refers to the fee-based service of your device, which may exclusively be carried out by the FT-TEC GmbH. Parts of the device subject to wear (e.g. battery, antenna, ripcord) will be exchanged as part of the maintenance. Your device will also be recalibrated if necessary.

You can carry out the annual self-test yourself. This test is to check the functionality of the components of your system.

6.2   Standards and norms

The product meets the following requirements:

- IEC 61108-1:2003:
  Maritime navigation and radio communication equipment and systems – Global navigation satellite systems (GNSS) – Part 1: Global positioning system (GPS) - Receiver equipment - Performance standards, methods of testing and required test results
- IEC 60945:2002:
  Maritime navigation and radio communication equipment and systems - General requirements – Methods of testing and required test results
- IEC 61097-14:2010:
  Global maritime distress and safety system (GMDSS) – Part 14: AIS Search And Rescue Transmitter (AIS-SART) – Operational and performance requirements, methods of testing and required test results
- EN 60950-1:2006+A11:2009+A1:2010+A12:2011:
  Information technology equipment - Safety - Part 1: General requirements
- IEC 62479:2010:
  Assessment of the compliance of low power electronic and electrical equipment with the basic restrictions related to human exposure to electromagnetic fields (10 MHz to 300 GHz)

6.3 Device specification

On the back of the SEAANGEL SA14-SART (see Figure 4 and Figure 7) unit, you will find device specifications and information, including the unique serial number and user ID number. The user ID is a 9-digit identification number which is transmitted in case of a test or emergency situation. You can use a PC/notebook or chartplotter to display AIS messages. The identification number is useful for telling devices apart when receiving messages from multiple devices simultaneously.

Please always state the serial number and model number (SA14-SART) found on the back of the device when dealing with service enquiries.

The user ID is not a unique number. The first 3 digits identify the type of transmitter (AIS SART for example is 970), the next 2 digits represent the manufacturer (FT-TEC is represented by 97) and the remaining 4 digits correspond to a consecutive number. Be aware that there may be more than one device with the same user ID.
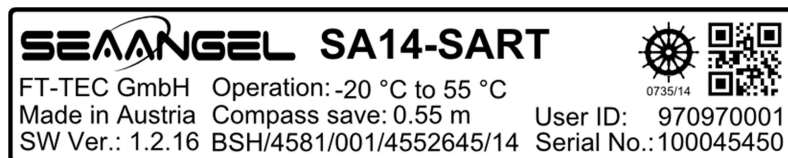

Figure 7: Device specification sticker

6.4 Battery life

This unit uses industrial lithium cells (Lithium manganese dioxide) which have a very low self-discharge. This guarantees a long life and 96 hours of active emergency operation, providing the device's batteries are replaced after activation or after 5 years – whichever comes sooner.

As shown in Figure 4, there is a sticker located on the back of your device, which shows the battery expiry date. In the example shown in Figure 8, the batteries will have to have been changed by July 2019, in order to not reduce the device's performance.

Figure 8: Battery expiration date

THE BATTERY MAY ONLY BE REPLACED BY FT-TECGMBH. DO NOT RISK LOSING THE WARRANTY OR OR DAMAGING THE DEVICE BY REPLACING IT YOURSELF.

The battery life can only be guaranteed if you follow the instructions in this manual. Do not expose the device to extreme weather conditions and only run the self-test (test mode) at specified intervals. If this is not done, you may shorten the unit's lifespan and affect the amount of time the unit can be used for active emergency operation.

6.5   Log and configuration memory

The SEAANGEL SA14-SART is equipped with a non-volatile memory. It contains the following data:

- Device configuration data (user ID, serial number, etc.)
- Error protocols
- Results of the self-test as part of maintenance works
- Activation cycles

The user has no access to this data. It is read and evaluated as part of the maintenance service, and is required for warranty claims.

7 Delivery contents

Please check the contents of the delivery before using the SEAANGEL SA14-SART.

- SEAANGEL AIS-SART Transmitter
- Telescopic pole
- Base plate for telescopic pole
- Cord 10 m
- Belt strap
- Belt clip
- Water contact
- Fastening screws
- Screwdriver
- User manual
- Carabiner

8 Operation

8.1 Emergency operation

In this mode, your device sends an emergency signal once a minute. This signal contains your current GPS position and a text-based message which reads "SART ACTIVE". The emergency signals sent from your device are broadcast messages, i.e. all ships in reception range equipped with an AIS transponder and receiver will receive your emergency signal, and can display your position and message on a digital chart.

Emergency operation can be activated on your device using different mechanisms.
1. Manual activation using the *ON* button
2. Automatic or manual activation using the ripcord
3. Automatic activation through water contact

> ⚠ **IN ORDER TO PREVENT SETTING AN UNNECESSARY RESCUE OPERATION ONLY ACTIVATE EMERGENCY OPERATION IF YOU ARE IN DANGER.**
>
> **YOU SHOULD ONLY USE THE TEST MODE TO CHECK THE FUNCTIONALITY OF YOUR DEVICE.**

When being used in emergency operation, the LED status *DISTRESS* will light up red, and the LED flasher will flash at 5 second intervals. If the LED *DISTRESS* stays constantly illuminated, this means that no GPS position could be determined. This will always be the case immediately after activation since the integrated GNSS receiver requires some time to process the data from available satellite systems and to determine an accurate position. If a position can be calculated, this LED will flash.

> ⓘ Sometimes, due to bad weather conditions or high waves, it may not be possible to determine a GPS position for a long time. In this case, the status LED *DISTRESS* remains illuminated and transfers your last valid position when sending the emergency signal.

8.1.1 Manual activation using the button

Follow these steps to manually activate emergency operation:

1. The safety slide **1** must be pushed up to the second[5] line in the direction of the antenna **2**. This will make the *ON* button **3** visible.
2. Press the *ON* button
3. The status LED *DISTRESS* **5** lights red to indicate emergency operation. Only when a valid GPS position has been acquired will this LED flash at regular intervals (this may take several minutes). In addition, the LED flash will flash. **6**
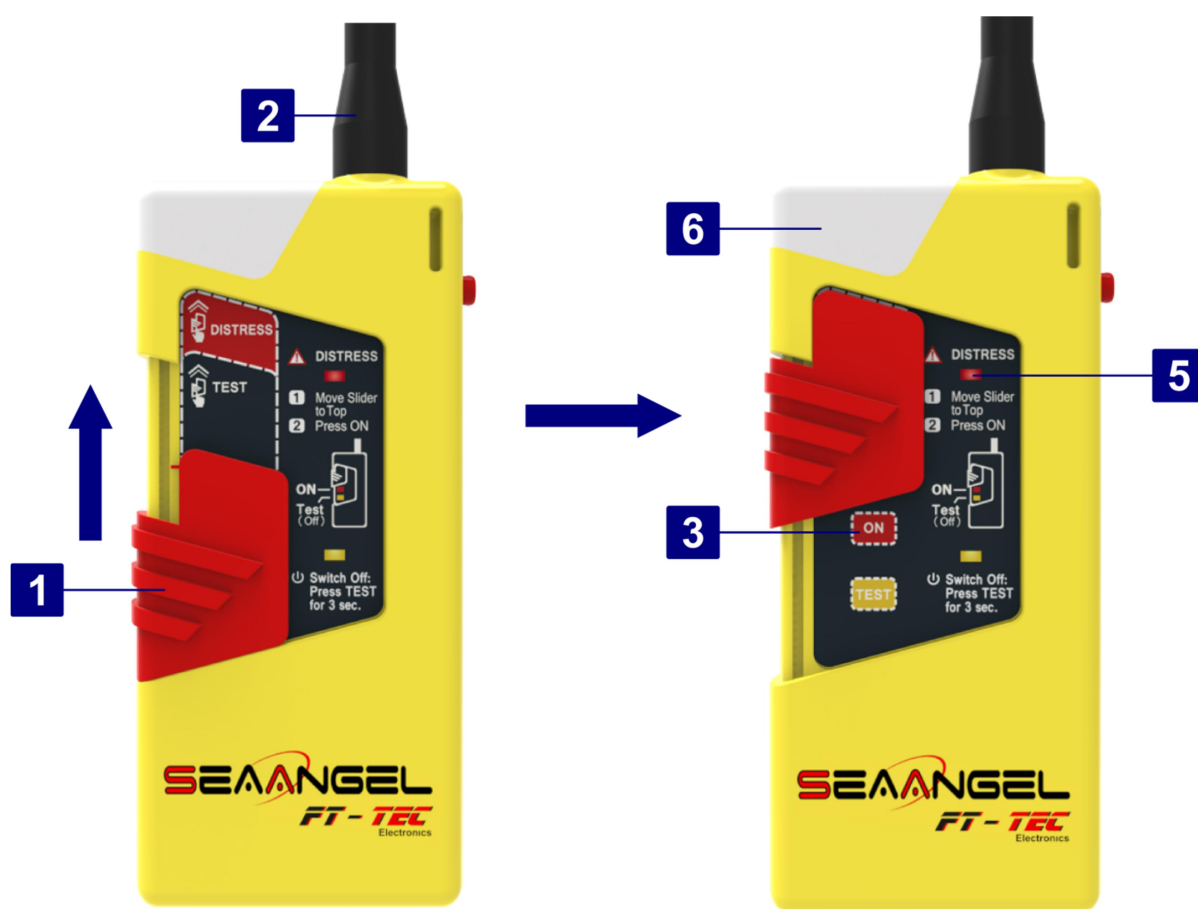

Figure 9: Activating the emergency alarm operation using the ON button

On the safety slide, there is a small plastic breaking point. This clip allows you to see whether the device has already been used in an emergency. If the safety slide, as described above, is pushed to the second snap point, the plastic clip will break off (see Figure 10). This component is replaced during maintenance.

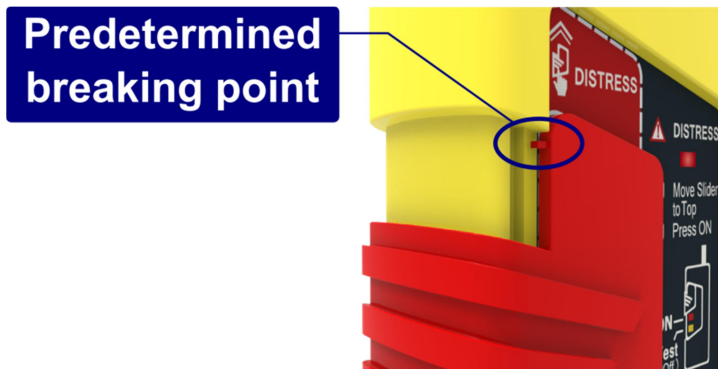[5] When moved to the first line, only the word *Test* is visible

Figure 10: Breaking point on the safety slide

Please bear in mind that the breaking point will only display a previous emergency operation when activated using the *ON* button. When activated by contact with water or by pulling the ripcord, there is no such indication. For this reason, it is all the more important that you send in the unit for maintenance immediately after each emergency operation.

8.1.2 Automatic or manual activation using the ripcord

Your device has a ripcord with a built-in magnet. If it is pulled from the unit, emergency operation mode is activated. This can be achieved either manually through your interaction with the device or automatically if you have an inflatable lifejacket. As there are numerous different lifejacket suppliers and lifejacket types, it is not possible to go into more detail in this manual. Make sure, however, that the ripcord is relatively taut when the lifejacket is in its deflated state so that the mechanism definitely triggers in an emergency.

Please make sure that the magnet of the ripcord does not come into contact with sensitive components such as cards with magnetic strips, credit cards, ATM cards, etc., as this may cause the card to no longer to function.

Make sure that you do not lose the ripcord in an emergency. If you do, there will be no way to deactivate the unit when you are safe again. Therefore, use the carabiner to secure the ripcord to your lifejacket or clothing.
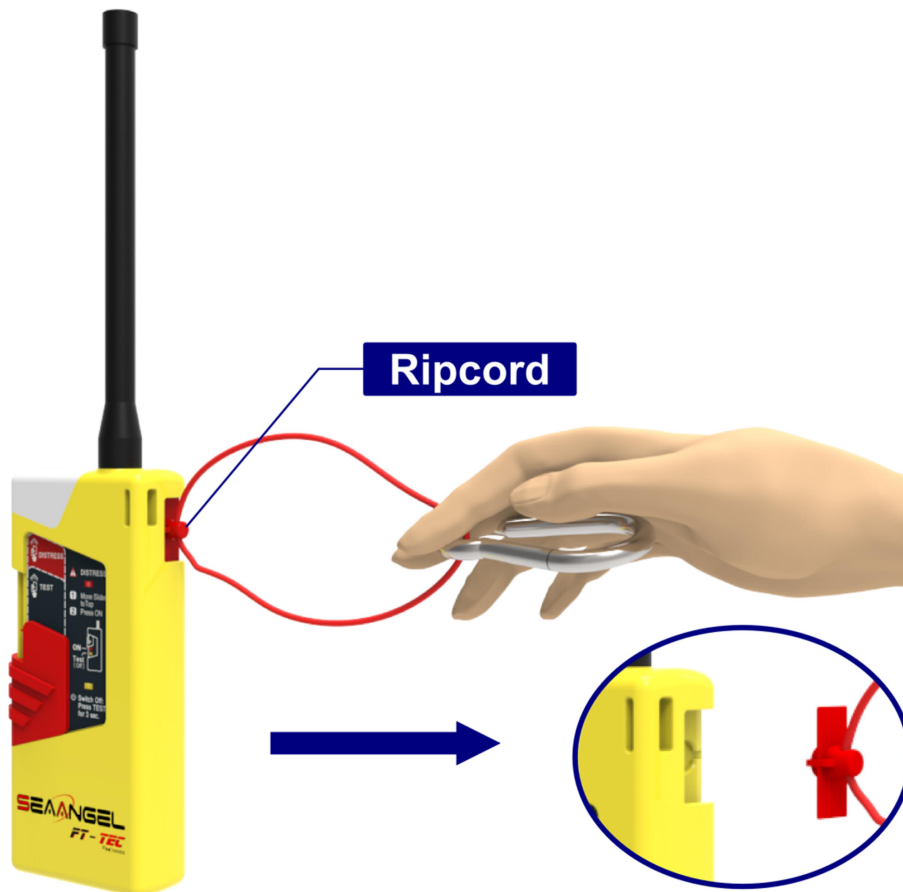

Figure 11: Activating the emergency alarm using the ripcord

8.1.3   Automatic activation through water contact

The SEAANGEL SA14-SART features a water contact switch (see Figure 4 and Figure 12) which automatically activates emergency operation if the device is immersed in water for more than 3 seconds. Once emergency operation has been activated, no further contact with water is required to keep the device in this state.
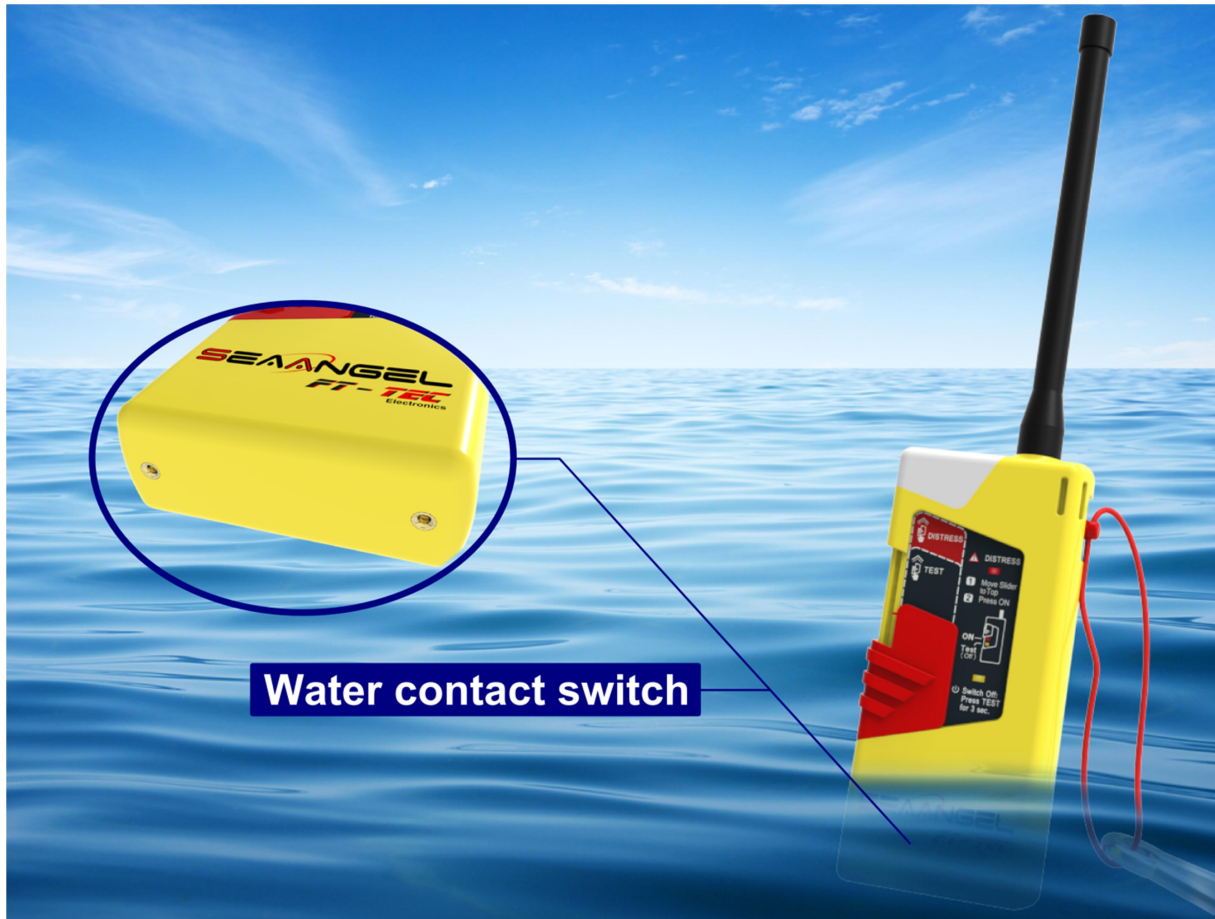

Figure 12: Activating the emergency operation using water contact

8.1.4   Deactivation

Deactivate emergency operation by holding the *Test* button down for more than 3 seconds. Once the power is off, no status LEDs will flash and you can release the button.

However, the device will not be deactivated by pressing the *Test* button under the following conditions:

- If the ripcord is not attached to the device
- If the water contacts are underwater

This precaution is to prevent you from accidentally disabling the device. Thus, always make sure that you do not lose the ripcord in case of an emergency.

⚠️ **DEACTIVATE EMERGENCY OPERATION ONLY WHEN YOU ARE SAFE AGAIN.**

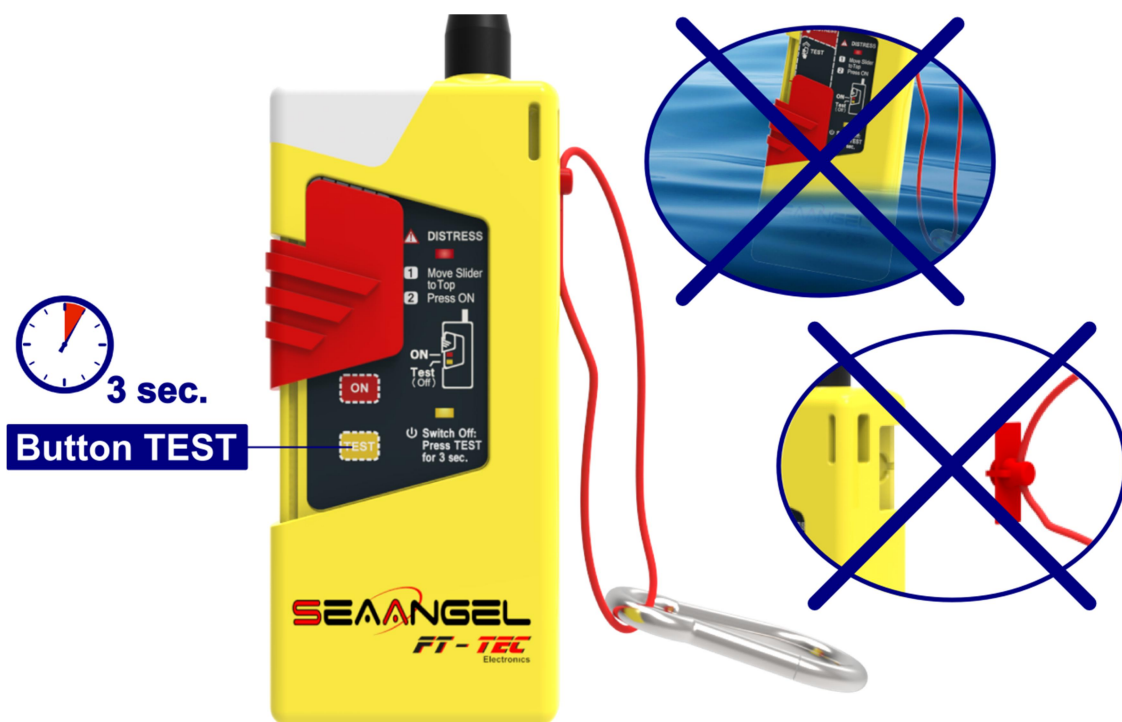👉 Remember that you have to send in the unit for maintenance immediately after each emergency operation.

Figure 13: Deactivating the SEAANGEL

8.2 Test operation

The functionality of your device is checked as part of the test operation. You must carry out this self-test once a year. Among other things, the following system components are checked:

- Battery
- GNSS receiver
- VHF transmitter

PLEASE REMEMBER THAT THE SELF-TEST CANNOT CHECK ALL COMPONENTS AND THEREFORE NO GUARANTEE OF THE DEVICE'S FUNCTIONALITY CAN BE PROVIDED.

An unrestricted period of use of 5 years can be achieved if the self-test is carried out only once a year. Also bear in mind that you need to send the unit in for service as soon as possible after activating the emergency operation.

If a self-test is performed, the device attempts to determine a GPS position for up to 15 minutes. After this time, test messages are transmitted by VHF, which contain the calculated position and the text "SART TEST". If you own an AIS transponder/receiver and the necessary equipment to display AIS messages, these test messages will be displayed on your system. If no GPS position can be determined within 15 minutes, an invalid location will be transmitted (longitude 181 °, latitude: 91 °)[6].

Ideally, you should run the self-test with good weather and a clear view of the sky, so that a GPS position can definitely be determined.

The start of the self-test is indicated by one flash of the LED flash. During the self-test, however, only the yellow status LED *Test* flashes.

Table 1 lists the possible results which can be issued via the status LEDs *DISTRESS* and *TEST* respectively at the end of the self-test. If the test is not successful, please contact the FT-TEC service centre and arrange a suitable maintenance date.

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[6] Valid longitude values are from -180 ° to +180 °, latitude values from -90 ° to +90 °.

Table 1: Status LEDs as part of the self-test

Status LEDs		Test results	Meaning
DISTRESS	**TEST**		
Stays illuminated for 5 seconds	Flashes	**OK**	- Successful test - GPS position was determined
	Stays illuminated for 5 seconds	**OK**	- Successful test - GPS position could not be determined
Flashes	Flashes	**WARNING**	- Battery almost empty - GPS position was determined
	Stays illuminated for 5 seconds	**WARNING**	- Battery almost empty - GPS position could not be determined
Does not light up	Does not light up	**ERROR**	- No battery life available or - device is broken

Remember, though, that the status is issued immediately after the self-test, whereby this information is displayed for a relatively short time. Then, the device is automatically disabled.

The duration of the self-test depends primarily on the speed with which the current GPS position can be determined, i.e. the duration can vary and may take as long as 15 minutes. Pay close attention to the device when performing the self-test in order to not miss the status being issued.

8.2.1 Activating the test operation

Follow these steps to manually activate the test operation:

1. The slider **1** must be pushed up to the second line[7] in the direction of the antenna **2**. This will make the *Test* button **3** visible.
2. Press the *Test* button.
3. The LED flash **4** will flash once.
4. The yellow status LED *Test* **5** will flash during the self-test.
5. At the end of the self-test, the result will be issued by the status LEDs *DISTRESS* **6** and *TEST* respectively (see Table 1). Pay close attention to your device for the duration of the self-test (up to 15 minutes).
6. When the result has been issued, the device will be automatically disabled.

Figure 14: Activating the test operation

ⓘ The device immediately changes from test to emergency operation if you activate it for emergency operation (see section 8.1).

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[7] When moved to the first line, the word *Test* is visible.

8.2.2   Deactivation

In general, it is not necessary to disable the test mode. The unit turns off automatically when the self-test has been completed. However, if you want to cancel the test mode, press and hold the button *TEST* again until the status LEDs are off (about 3 seconds).

9 Mounting

The SEAANGEL SA14-SART offers a variety of mounting options. In this user manual, there are instructions on how to mount the device to a lifejacket and to a telescopic pole. As there are various different lifejackets manufacturers and models, the method described in this guide is only one of many options. It would not be possible to cover every eventuality in this document due to the sheer amount of possibilities.

9.1 Mounting the telescopic pole

IEC 61097-14 requires that an AIS-SART is able to be mounted at least one meter above sea level. If you mount the SEAANGEL SA14-SART on a lifejacket, it is physically not possible to observe this requirement. For all other cases, this telescopic rod is provided so that the device may be operated on a life raft, for example.

To attach the telescopic rod to the SEAANGEL SA14-SART, you must first mount the device on the base plate. Follow the steps below:

1. Attach the base plate of the telescopic pole **1** to the case (with internal thread) **3** using the supplied screws **2** and screwdriver.
2. The base plate can stay on the device, even if you end up not using the telescopic pole. Activation through water contact will not be affected by this.
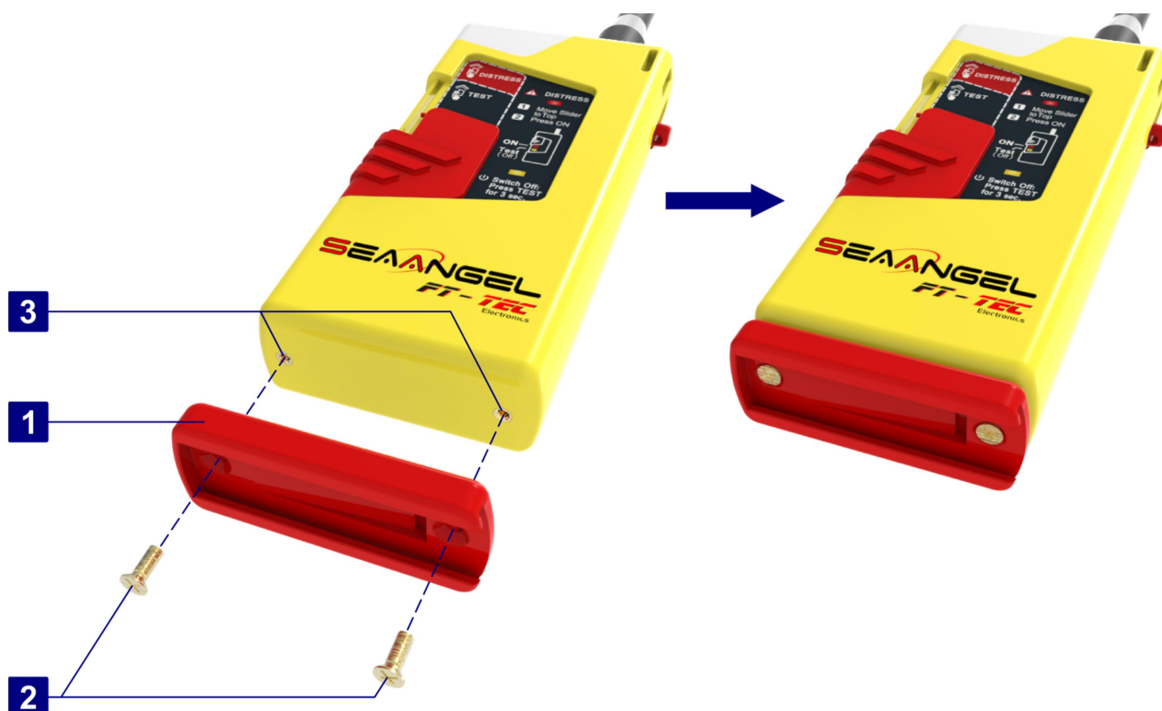
Figure 15: Mounting the telescopic pole to the base plate

The next step is to mount the telescopic rod itself. You can remove it at a later date without any tools. For this purpose, slide the float **4** into the base plate of the telescopic pole **5** until it snaps into place **6**. Pay particular attention to the correct direction.
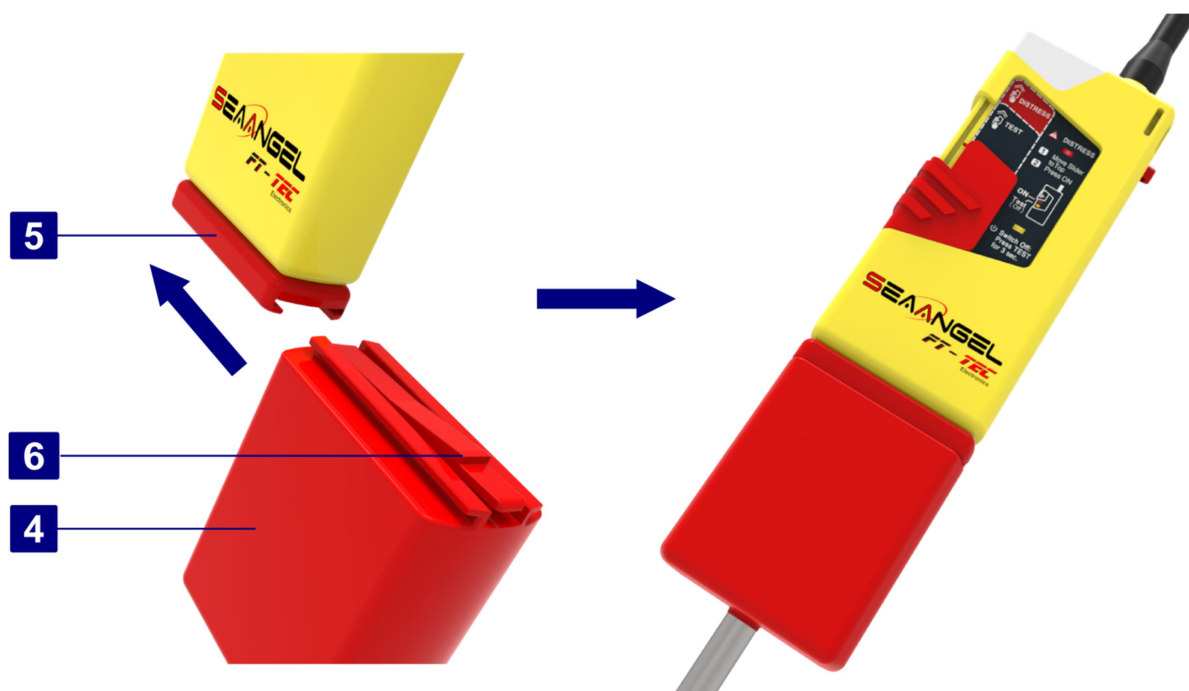
Figure 16: Mounting the float to the base plate of the telescopic pole

9.2 Mounting the SEAANGEL on a belt

You have two options for attaching the device to your belt.

1. Permanent attachment using the belt strap. For this purpose, a non-corrugated belt mounting plate is provided.
2. Attach the strap to the belt with a belt clip which includes a belt mounting plate with corrugation as well as the clip itself.

Figure 17: Comparison of belt attachment options

9.2.1 Permanent attachment using belt strap

If you want to attach your device to a belt permanently, use the belt strap as follows:

1. Place the belt **1** between the sleeves (with internal thread) **2** on the back of your device.
2. Place the mounting plate **3** (without corrugation) above the belt and fasten it to the device using the screws **4**.
3. You must first remove the screws before being able to release the SEAANGEL from your belt. If you prefer to attach the device to your belt without tools, use the belt clip, as described in the following section.
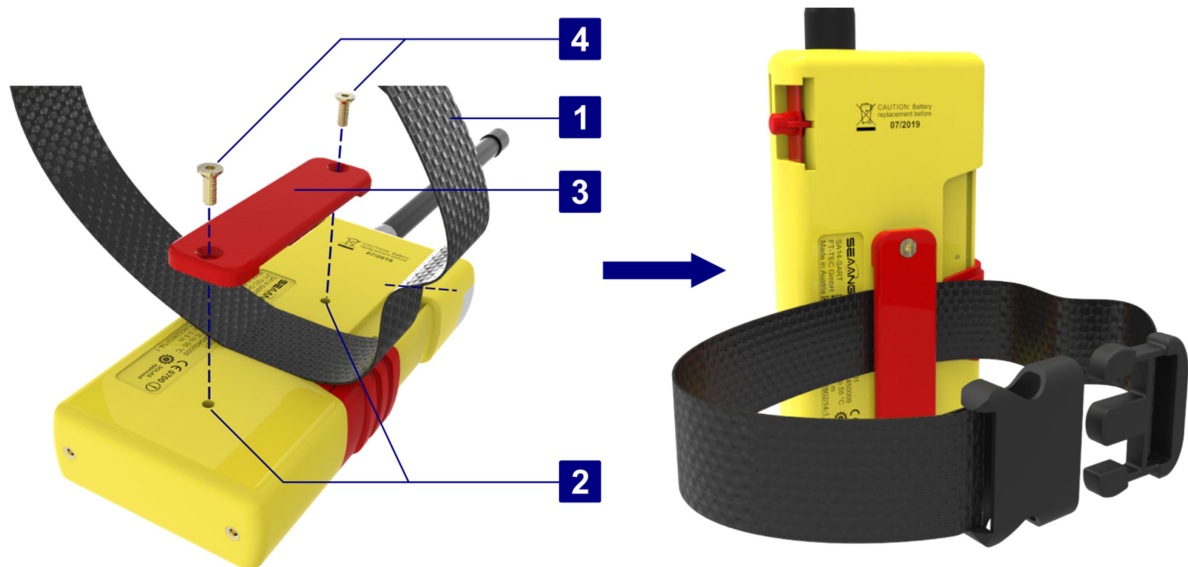

Figure 18: Attaching the belt strap

9.2.2 Removable attachment using a belt clip

The belt clip allows you to attach/detach your SEAANGEL to your belt easily without tools. You only need to follow these steps once in order to attach the belt clip itself:

1. Attach the belt clip **1** and base plate (with corrugation) **2** to the sleeves **4** on the back of the device using the screws **3** included.
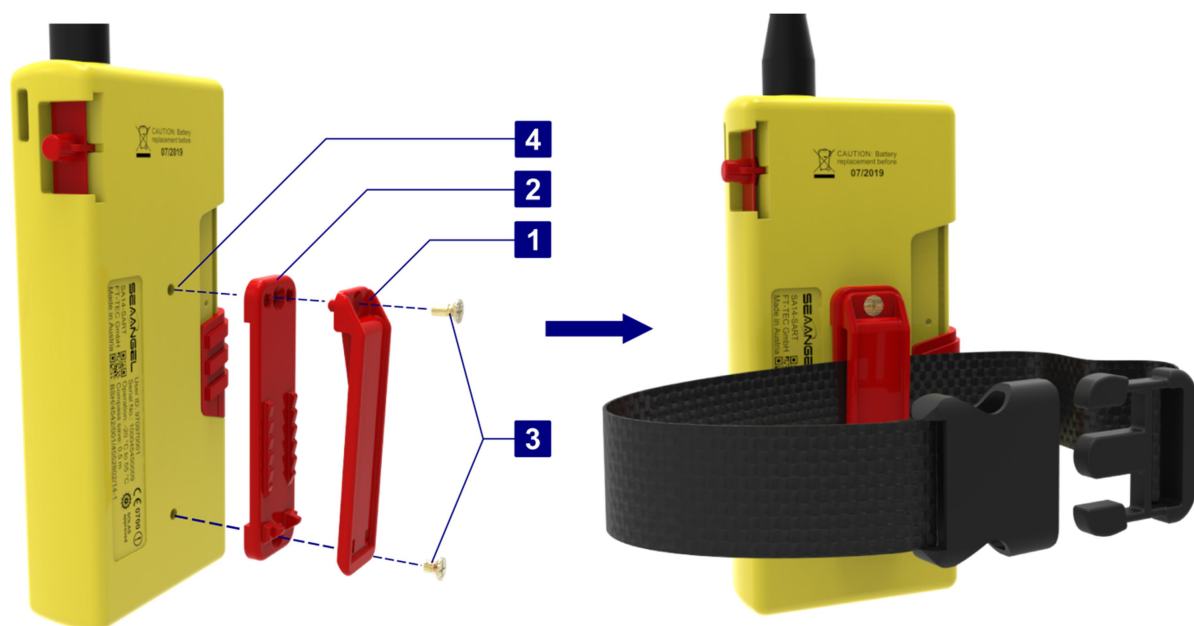2. You can now attach your SEAANGEL to your belt (shown below).

Figure 19: Attaching the belt clip

9.3 Mounting on a lifejacket

Since there are many types of lifejackets and manufacturers on the market, it is not possible to describe all mounting options in this manual.

In section 9.2, the techniques for attaching the SEAANGEL to belts were described. Many lifejackets have a belt; thus, you can mount the SEAANGEL as described. Figure 20 shows a possible lifejacket attachment solution.

Figure 20: Mounting the SEAANGEL on a lifejacket (Spinlock DeckVest 5D 170N)

10 Taking care of the device

The SEAANGEL SA14-SART does not feature any components which need to be maintained by the customer himself. For any maintenance work, simply send your device to FT-TEC GmbH. It is necessary to have the device inspected if:

- The battery life has expired. The maximum battery life is 5 years providing that no emergency operation was used in that time and that the self-tests were carried out in the specified intervals (see section 6.4 and 8.2).
- The device has already been used in an emergency. The device must be inspected after every emergency operation.
- The annual self-test has concluded with either WARNING or ERROR (see Table 1).
- The device has visible external damage (e.g. broken antenna, cracks in the case, etc.)

In case of any problem with the product, please contact your dealer or the FT-TEC support team.

Please remember that any guarantee and warranty claims are void if the SEAANGEL SA14-SART is opened without authorisation.

Do not clean the device with aggressive solvents. Use only pH neutral detergents and clear water.

The antenna must not be unscrewed. This may damage your device, thus voiding the guarantee.

YOUR DEVICE MAY NOT WORK IF IT IS NOT MAINTAINED PROPERLY. IN AN EMERGENCY SITUATION, THIS COULD HAVE AN IMPACT YOUR HEALTH.

Remember that maintenance carried out by FT-TEC GmbH does not replace the annual self-test.

11 Contact and support information

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12 Declaration of conformity

This product is Made in AUSTRIA

DECLARATION OF CONFORMITY

Marine Equipment Directive (MED) 96/98/EC and last modification by Directive 2014/93/EU

Manufacturer:	FT-TEC GmbH
Address:	AUSTRIA, 7343 Neutal, Werner von Siemens Strasse 5
Annex A.1:	4.55 AIS SART equipment
Technical Construction File:	Held by manufacturer FT-TEC GmbH

Type approval number: **BSH/4581/001/4552646/14**

We declare that the device: **SEAANGEL SA14-SART** meets all essential requirements of the Module B specified standard(s):

- IMO Resolution A.694(17)
- IMO Resolution MSC.246(83)
- IMO Resolution MSC.247(83)
- IMO Resolution MSC.256(84)
- IMO Resolution A.802(19)
- ITU-R M.1084-5
- ITU-R M.1371-5, 2014 [as relevant to AIS SART]
- IEC 61097-14 Ed.1.0, 2010
- IEC 60945 Ed.4.0, 2002 incl. Corr.1, 2008 [limited to requirements of IEC 61097-14]
- IEC 61162 series [equipment has no interfaces]

Assessment Bodies:

- BSH-Cert (Notified Body 0735 for Module B – Federal Maritime and Hydrographic Agency, Bernhard-Nocht-Str. 78, 20359 Hamburg, GERMANY)
- Bureau Veritas (Notified Body 0062 for Module D - Bureau Veritas, 67/71 Boulevard du Château, 92200 Neuilly sur Seine, FRANCE)
- PHOENIX TESTLAB (Accredited Laboratory 0700 - PHOENIX TESTLAB GmbH, Königswinkel 10, 32825 Blomberg, GERMANY)

Neutal, 29.01.2015
Friedrich TROBOLOWITSCH
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13 FAQ

What is needed to receive the emergency signal transmitted by the SEAANGEL?

You need an AIS transponder or AIS receiver. If you want to show messages, you will also need either PC software (e.g. OpenCPN) or a chartplotter.

FT-TEC recommends the affordable AIS receiver, the SEANEXX RX100 or RX110. For more information, please visit www.ft-tec.com

I can no longer disable my SEAANGEL. What should I do?

You can turn off the device by the holding the *Test* button for 3 seconds continuously. If the device still does not disable, make sure the ripcord is attached to the device and the device is not in the water.

According to the description, the SEAANGEL sends a burst of 8 messages per minute. However, sometimes I receive fewer messages in a minute.

This can have several causes:

1. Your receiver unit cannot receive simultaneously on both AIS channels. Since the SEAANGEL sends alternately on both channels, some data gets lost.
2. The SEAANGEL has a limited range. The reception conditions may be extremely poor.
3. AIS uses a time slot method. In a time slot, only one device can transmit. Since the SEAANGEL has no receiver, it cannot check before a transmission whether the current time slot is occupied or not. If several AIS devices transmit at the same time, there is an overlap and the message cannot be received correctly.

Why does the device need to be serviced after each emergency activation?

According to industry standards, the device must be able to run (after storage for 5 years) for a period of at least 96 hours after activation. If you have used the unit for emergency operation, this period cannot be guaranteed. For this reason, the on-board battery must be replaced.

The ripcord is lost. The device can'o be turned off, what can I do?

You can only disable the device by placing a magnet against the point where the ripcord was attached. Remember that the ripcord is attached to the lifejacket using the carabiner to prevent this from happening.

Can an AIS-SART device be mounted on a lifejacket?

The scope of an AIS-SART unit is well defined in IEC 61097-14. For proper functionality, the device (especially the antenna) must be mounted at least one metre above the water surface. This is of course not possible using a lifejacket. This will also lead to performance issues. There are MOB (man over board) devices available if you wish to mount a unit onto a lifejacket. An AIS-SART generally meets all the requirements of an AIS-MOB and surpasses them (e.g. lifespan, performance, etc.). Accordingly, you can use an AIS-SART on life rafts as well as on lifejackets.

Besides, AIS-SART devices are suitable for commercial ships and therefore meet high quality standards.

What is the difference between AIS-MOB and AIS-SART devices?

AIS-MOB devices are intended to be mounted on lifejackets, AIS-SART are intended for life rafts or lifeboats. These two devices differ in their characteristics and quality standards. Generally speaking, AIS SART is higher quality.

I own an AIS-capable chartplotter. How can I tell, which messages were sent from my SEAANGEL?

On the back of your SEAANGEL, you will find your user ID which is linked to the transmitted messages. This ID should be displayed on the chartplotter – depending on the model. For the SEAANGEL, this number features the identifier 97097xxxx, where xxxx stands for any number. Please remember that this user ID is not unique among AIS-SART devices (unlike the MMSI which your transponder uses), which means you may receive another device with the same user ID.

What sense is there in having a breaking point on the safety slide when there is no visual indication showing previous emergency operations activated by the ripcord or by water contact?

In short, there is none! However, this is a requirement according to norm IEC 61097-14 and must therefore be included. To ensure that your instrument works properly, send it in for servicing immediately after emergency operation and run the self-test at the specified intervals.

There are similar products available on the market, which allow you to change the batteries yourself. Why is this not possible for the SEAANGEL SA14-SART?

It is not possible for customers to check whether the device is still waterproof after replacing batteries. When FT-TEC replaces the batteries, they additionally check whether the device still functions correctly, whether there are any leaks, and they re-calibrate the device in order to guarantee performance.