easy AtoN

Aid to Navigation - Typ1

weather dock AG

Manual

AIS Aid to Navigation – Type1

Rev. 1.0

Weatherdock AG, Germany

PLEASE READ THIS FIRST!

Safety Precautions

The easyAtoN-Type1 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 easyAtoN-Type1 could cause damage. Li-Ion batteries shall be given to the recycling process and should not be given to the home garbage. The easyAtoN-Type1 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 easyAtoN-Type1, damaged battery pack or misuse by the user. Use this device only together with certified equipment. Other equipment could damage the easyAtoN-Type1. 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 easyAtoN-Type1 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 easyAtoN-Type1 hardware and software may be upgraded from time to time and future versions of the easyAtoN-Type1 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.

DISCLAIMER

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ATTENTION:

PLEASE USE THE EASYATON-TYPE1 CAREFULLY AND NOT UNINTENDED. ALSO THE EASYATON-TYPE1 WILL NOT OPERATE AUTOMATICALLY. IT MUST BE INITIALIZED BY THE USER IN CASE OF EMERGENCY

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

Restrictions
There are no known restrictions for the usage of the unit in EU countries.

Table of Content

Revision of the operation manual

Rev. 1.0 New, MK, May 2022

Rev. 1.0 minor changings, MK, October 2022

1. Short description

Picture 1 - easyAtoN-Type1

The easyAtoN-Type1 is an AIS transmitter used as "Aid to navigation" to provide location and identification of buoys, beacons and marks to nearby vessels and to display them on AIS chart display in real-time.
The unit can be driven by external power supply via cable or with internal battery power which will last for about 5 days before recharging becomes necessary.

2. Scope of Delivery

- easyAtoN-Type1
- mounting bracket
- quick instruction manual

optional:

- mounting bracket with cable for external power supply
- programing socket
- programing software

3. Index of Abbreviations

AtoN	**A**id **to** **N**avigation
AIS	Automatic Identification System

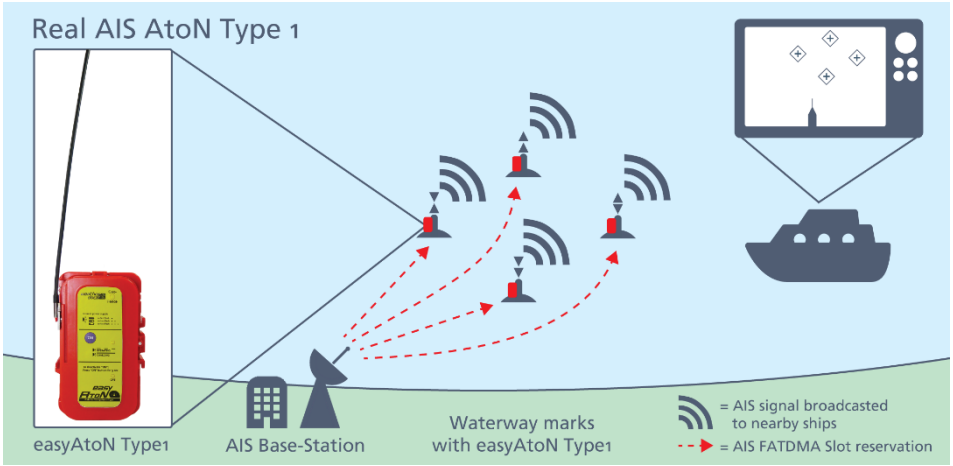
4. Pictures/Sketches Overview

5. AtoN in general

AtoN (Aids- to-Navigation) are sending information presenting a buoy or sea-sign (e.g. beacons, cardinal mark, single danger mark, waterway marks, etc.). The AtoN-transmitters may be located at the buoy (real AtoN) or apart from the AtoN-position (synthetic or virtual AtoN).

5.1. AIS AtoN Type1

A Type 1 AIS AtoN is a transmit-only device using the FATDMA (Fixed Access Time Division Multiple Access) access scheme. This requires that the AIS AtoN is configured with fixed AIS time slots in which it will transmit AIS messages. Mobile AIS stations operating in the area where a Type 1 AIS AtoN is installed need to be aware of the time slots allocated to the AIS AtoN. The slots allocated to the AIS AtoN are 'reserved' by AIS Base Station transmissions covering the area in which the AIS AtoN is installed. This mode of operation therefore requires that an AIS base station is operating in the same area as the AIS AtoN and is configured to make the necessary slot reservations.



Picture 2 - general easyAtoN-Type1 working sketch

5.2. GNSS Systems

The easyAtoN unit includes an internal GNSS receiver to supply the GPS and GLONASS satellite navigation systems as standard.

5.3. AIS messages supported by AtoN

Message number	Description	Transmitted / Received by AtoN Transceiver	Application
1-4	Position report (Class A and Base Station)	received	Internally processed for AIS-Slot-Reservation Table.
5	Class A static data		
6	Addressed Binary Message	transmitted and received	
7	Addressed Binary Message	transmitted and received	

8	Broadcast Binary Message	transmitted and received	The transceiver uses message 8 to broadcast binary data (relating to connected sensors and systems) to all other AIS stations in range.
12	Addressed safety related message		On request
13	Addressed safety related acknowledgement		On request
14	Safety related message		On request
18	Position report (Class B)	received	Internally processed for AIS-Slot-Reservation Table.
21	Aids to navigation report	transmitted	This is the primary message transmitted by the transceiver. It contains the position, identification and status of the transceiver.
25	Single slot binary message		On request
26	Multi slot binary message		On request

5.4. Reporting Intervalls

Msg. 21 (AtoN): 3 minutes (autonomous mode = default)
Msg. 6, 8, 21 (AtoN): 10 seconds up to 1 day (assigned mode = special configuration)

5.5. AtoN type of mark

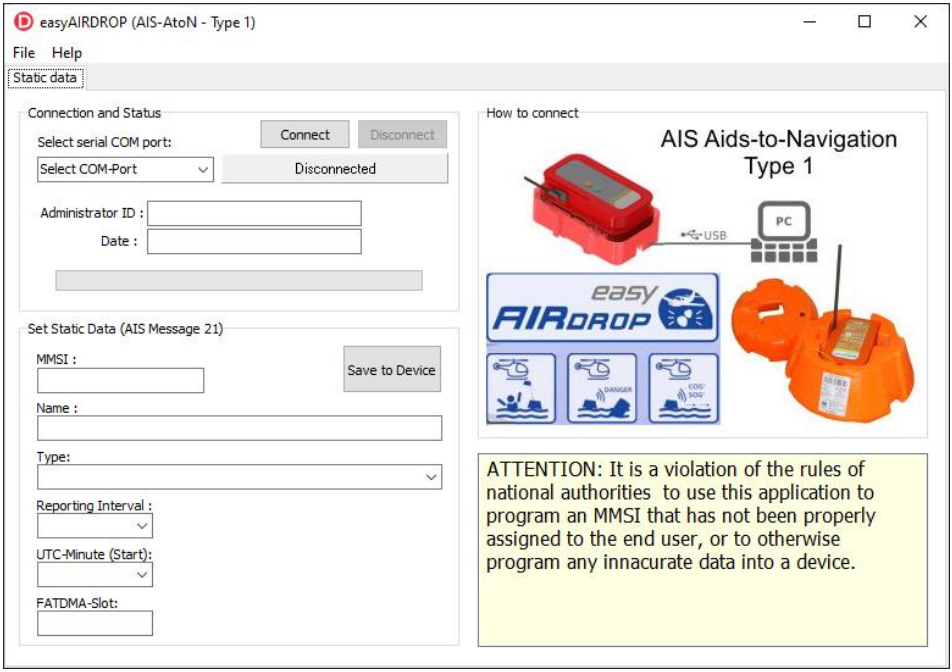
This is the type of the AtoN. The AIS standard has got a predefined list of types. Only the type "30 Special Mark" is appropriate for the aquaculture plant.

0 not specified
1 Reference point
2 RACON
3 Fixed structure
4 Spare
5 Light, without sectors
6 Light, with sectors
7 Leading Light Front
8 Leading Light Rear
9 Beacon, Cardinal N
10 Beacon, Cardinal E
11 Beacon, Cardinal S
12 Beacon, Cardinal W
13 Beacon, Port hand
14 Beacon, Starboard hand
15 Beacon, Preferred Channel port hand
16 Beacon, Preferred Channel starboard hand
17 Beacon, Isolated danger
18 Beacon, Safe water
19 Beacon, Special mark
20 Cardinal Mark N
21 Cardinal Mark E
22 Cardinal Mark S
23 Cardinal Mark W
24 Port hand Mark
25 Starboard hand Mark
26 Preferred Channel Port hand
27 Preferred Channel Starboard hand
28 Isolated danger
29 Safe Water
➢ 30 Special Mark (<-- only this is used for sea farms)
31 Light Vessel/LANBY/Rigs

6. Programing of the easyAtoN-Type1

For every AtoN it is statutory to have an own valid MMSI number.
The configuration of the easyAtoN unit can be done very easy with the programming software (contained on CD-ROM) via USB cable from a PC or laptop.

a) Open the software …



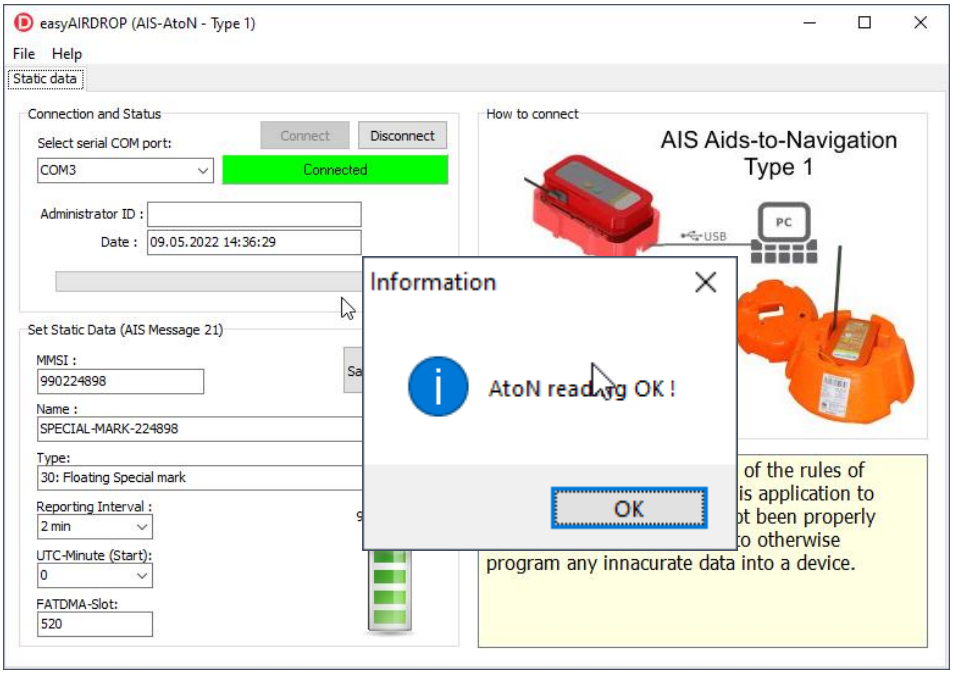
Picture 3 - Programming Software

b) connect the USB cable of the programing socket to your PC.

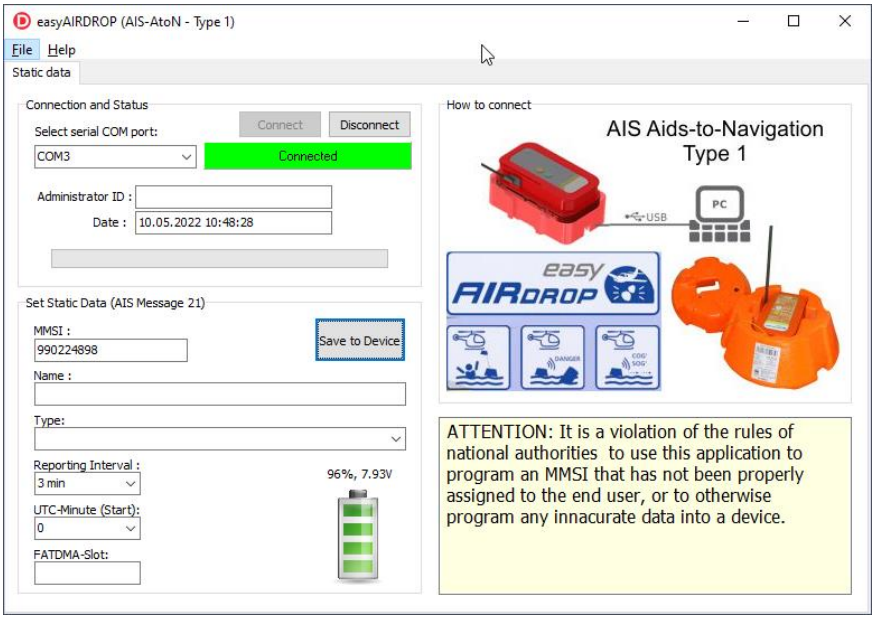
c) Place the easyAtoN-Type1 into the socket. You can hear a “click” when in right position.

d) The unit will be activated automatically and the LEDs start flashing.

e) Select the right COM port where the USB cable is plugged and press “Connect” in the software window.



f) After a few seconds the information is given that the connection to the easyAtoN-Type1 is established.



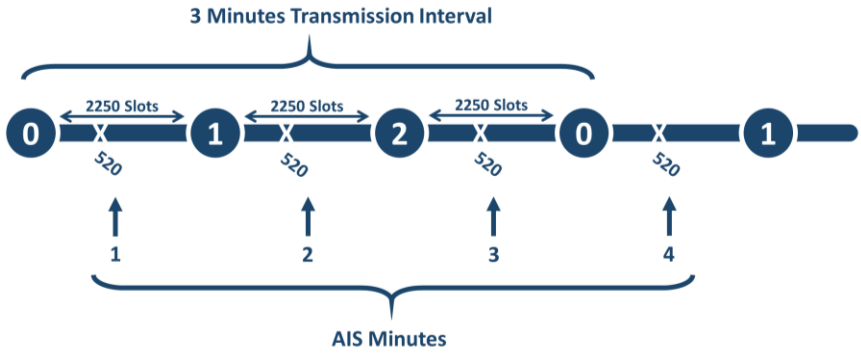
As you can see, the unit is pre-programmed with a MMSI number out of production.

g) Within the next steps, you have to define

- The name of the unit, which has to be transmitted into the AIS traffic. This appears on the vessels ACDIS / chart plotter
- The special type of mark (see 1.7)
  this defines the way of how to react on the show mark, e.g. "Beacon Cardinal E"
- The reporting interval if you don't want to us default value of 3 minutes
- The UTC-Minute
  every AIS minute is divided into 2250 time slots. By means of the UTC minute you can define which AIS

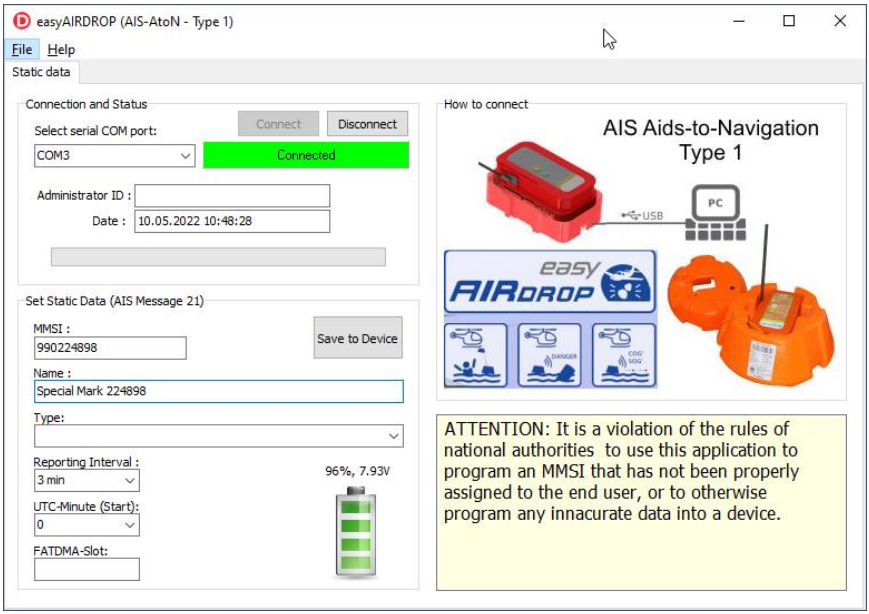
minute has to be taken with the dedicated time slot reserved by the AIS base station

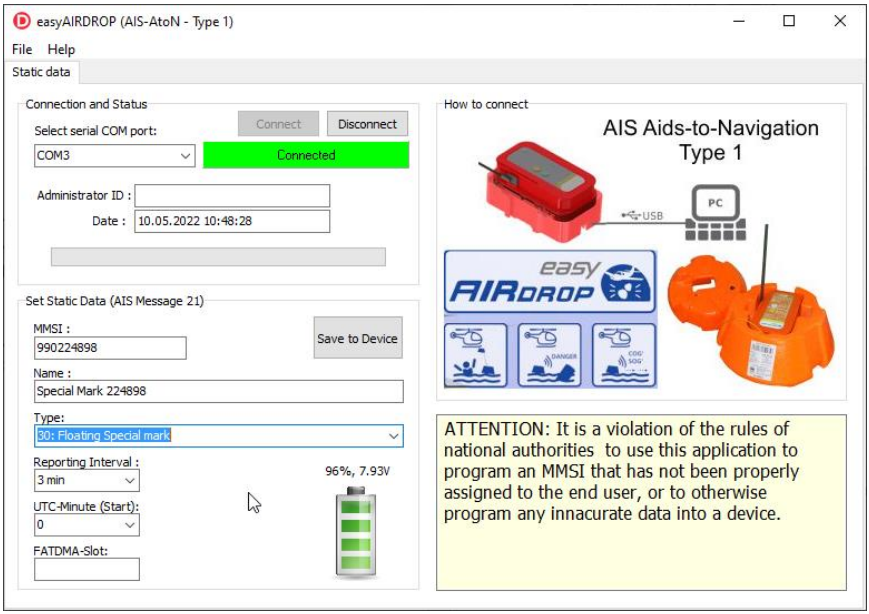
- 0 = within the first minute
- 1 = within the second minute
- 2 = within the third minute



Picture 4 - Scetch of AIS Minutes

- The FATDMA-Slot for transmission into AIS traffic which will be organized and reserved by the AIS base station This value shows the dedicated time slot within one single AIS minute.


easyAIRDROP (AIS-AtoN - Type 1)
File
Help
Static data
Connection and Status
Select serial COM port:
Connect
Disconnect
COM3
Connected
Administrator ID :
Date :
10.05.2022 10:48:28
Set Static Data (AIS Message 21)
MMSI :
990224898
Save to Device
Name :
Special Mark 224898
Type:
Reporting Interval :
3 min
UTC-Minute (Start):
0
FATDMA-Slot:
96%, 7.93V
How to connect
AIS Aids-to-Navigation
Type 1
USB
PC
easy
AIRDROP
ATTENTION: It is a violation of the rules of national authorities to use this application to program an MMSI that has not been properly assigned to the end user, or to otherwise program any innacurate data into a device.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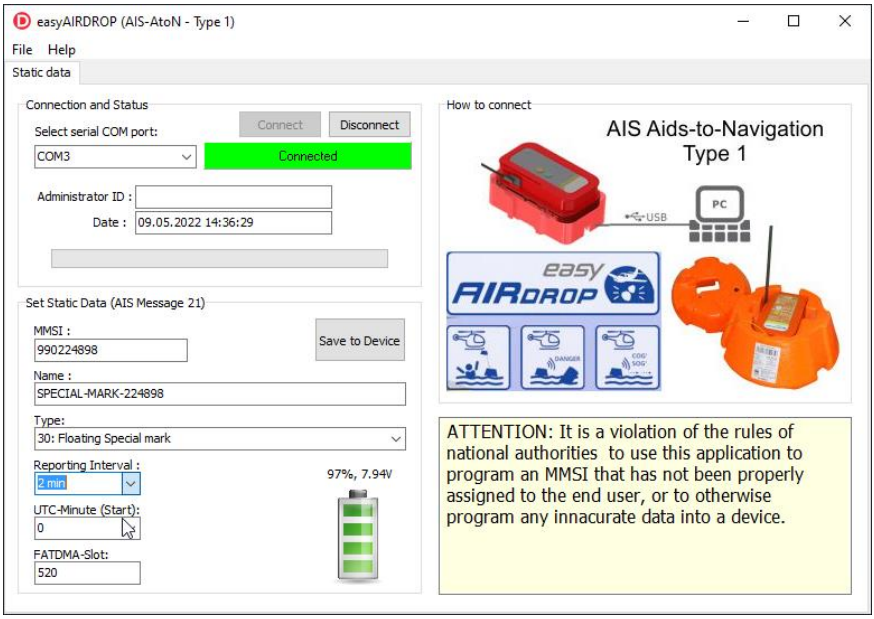
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Connection and Status
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Administrator ID :
Date : 09.05.2022 14:36:29
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MMSI :
990224898
Save to Device
Name :
SPECIAL-MARK-224898
Type:
30: Floating Special mark
Reporting Interval :
2 min
97%, 7.94V
UTC-Minute (Start):
0
FATDMA-Slot:
520
How to connect
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easy AIRDROP
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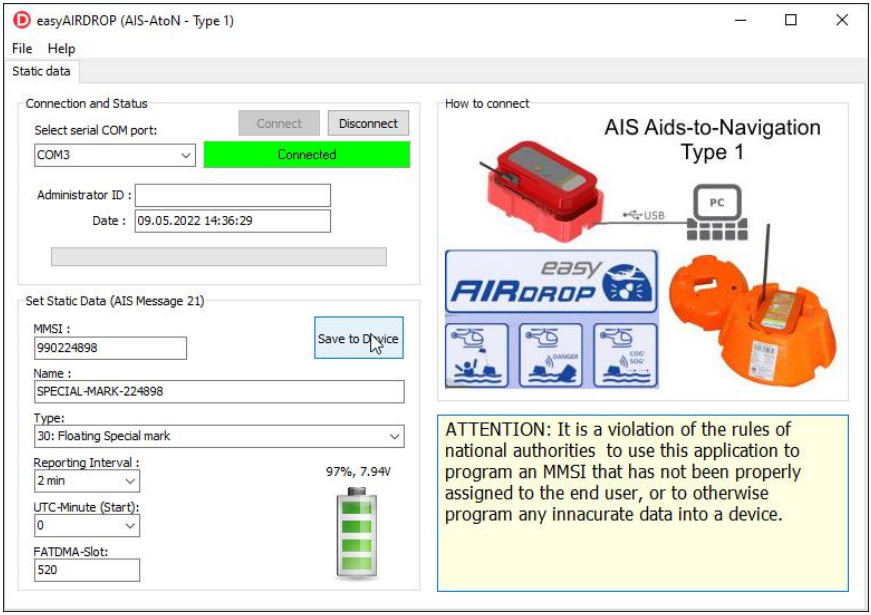
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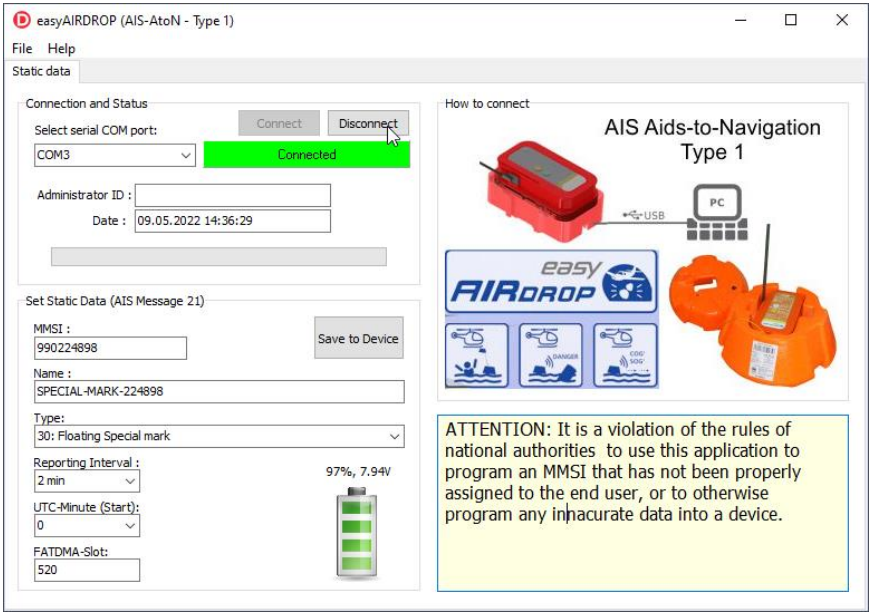
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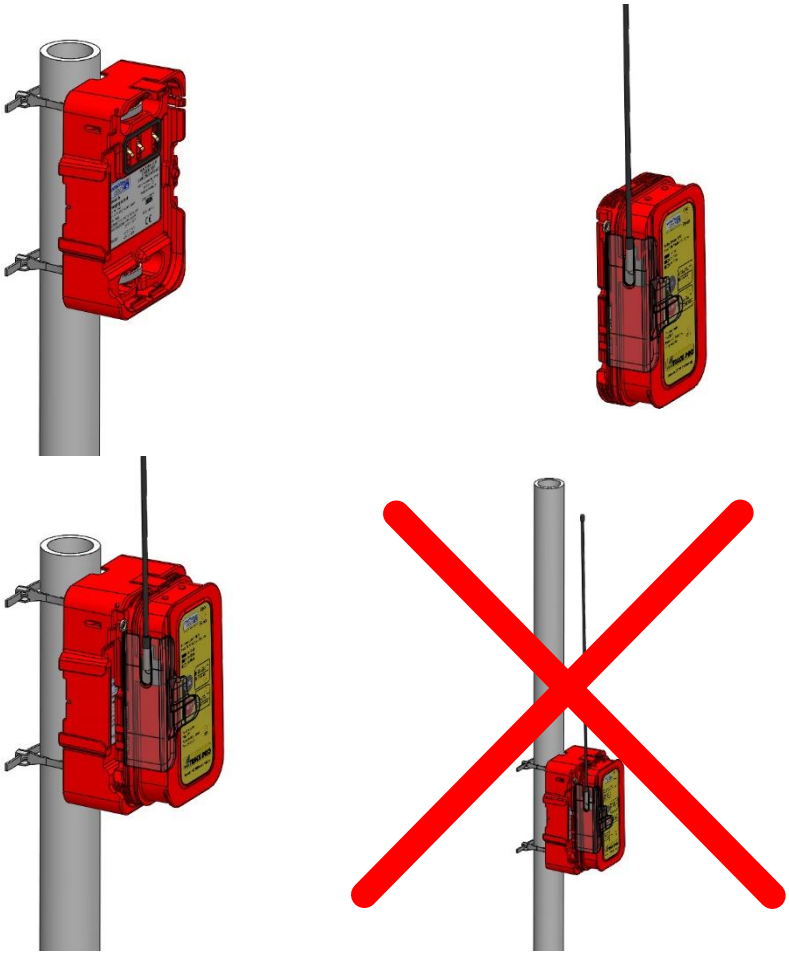
7. Mounting the easyAtoN-Type1

For best possible performance it is a must that the top of the unit has clear view to the sky (location of GNSS antenna) and there is no metal, pole or plate/wall, is at same height with the VHF antenna.



Picture 5 - Mounting (right & wrong)

8. Technical Data

Parameter	Value
Dimension	130 x 40 x 70 mm
Weight	380 g (incl. charger)
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.)
GNSS 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 easyAtoN-Type1) points
Display	3 LEDs and a "Flash"-LED
Activators	2 buttons
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

Parameter	Value
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

9. Declaration of Conformity

We: **Weatherdock AG,**
Emmericher Str. 17, D-90411 Nürnberg

declare under our sole responsibility that the products

Name and Type	easyAtoN Typ 1 (AIS Aids To Navigation);

The above product is tested and complies with all applicable requirements of the following international instruments, regulations and testing standards for AIS-AtoN, detailed set forth in:

EU Council Directive	Directive 2014/53/EU RED
Testing standards	• ITU-R M. 1371-5 • IEC/EN 60945:2002 + Corr. 1:2008 • IEC 61097-14:2010 • IEC 62287-1:2013 Clause 11, 12 • IEC 61108-1:2003 • IEC 60950-1:2006 • IEC 62368-1:2014 • IEC 62320-2 Ed.2 (2016)
Name, Address of manufacturer	Weatherdock AG, Emmericher Str. 17, D-90411 Nürnberg
Assessment of radio (article 3.2)	By Notified Body 0700, Phoenix Testlab
Assessment of article 3.1a,3.1b and 3.3	According marine electronic standards (see testing standards).
Statement of Conformity AIS AtoN	Nr. BSH/454.AIS-AtoN/Weatherdock easyAtoN/001

Usage:
The intended usage of the device is to participate the AIS (Automatic Identification System) on waterways. The device is able to transmit AIS messages according to FATDMA and it has got an own position source (GNSS receiver). It transmits AtoN data (AIS Message 21), which can be configured by interface port.

Assessment bodies:
Assessments made at, documents issued by:

- BSH, (Federal Maritime and Hydrographic Agency of Germany), Hamburg, Germany
- TÜV SÜD Product Service GmbH, Straubing, Germany
- Bureau Veritas CPS Germany GmbH, Nürberg, Germany
- Type approval (article 3.2) by Phoenix Testlab in Blomberg, Germany
- Product Safety Consultant Inc., New Taipei City, Taiwan

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

Alfred Kotouczek-Zelse, CEO
April 7th, 2022

Jürgen Zimmermann, CTO
April 7th, 2022

weather dock

Weatherdock AG
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90411 Nürnberg
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info@weatherdock.de

10. FAQ

Problem	Reason	Solution
Device can't be activated	Battery is empty	**Recharge the Li-Ion batteries only with the charger station for the easyAtoN-Type1**
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 easyAtoN-Type1 has Bluetooth (***Fehler! Verweisquelle konnte nicht gefunden werden. Fehler! Verweisquelle konnte nicht gefunden werden.***). Shut down your smartphone and the easyAtoN-Type1 and try it again.**

11. 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.

12. Contact

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Emmericher Str. 17
D – 90411 Nuremberg
Germany

Phone: +49 – 911 – 376638 – 30
Fax: +49 – 911 – 376638 – 40

General Service
info@weatherdock.com