Pharos Marine Automatic Power

BROCHURE

AIS AtoN

Automatic Identification System

Introduction

OVERVIEW

The AIS (Automatic Identification System) is one of the biggest advances in marine navigation since RADAR.

The idea behind AIS is to create a global marine network by exchanging information between vessels, onshore stations and AtoNs, which will increase the mariner's safety.

The AIS is designed to operate autonomously and automatically to exchange short messages among ships, coast stations, and navigational aids within a 20 to 30 nautical mile (NM) (27 to 56 km) range. Messages include static data such as an AIS unit's name, dimensions, identification number and dynamic data such as vessel speed, course and position.

TYPES OF AIS

The AIS are divided depending on where they are being used, as its functioning and purposes may vary. For example, Class A vessel messages will have higher priority than Class B if the channel is busy.

Class A: Vessels of 300 gross tonnage and upwards engaged on international voyages, cargo ships of 500 gross tonnage and upwards not engaged on international voyages, as well as passenger ships (more than 12 passengers), irrespective of size.
Class B: commercial and recreational vessels that do not belong to class A
Aids to Navigation: (AtoN) including buoys, Offshore platforms and Lighthouses
Search and Rescue Aircraft
Search and Rescue Transmitter
AIS Base Stations: Shore-based station providing text messages, time synchronization, meteorological or hydrological information, and navigation information

Pharos Marine Automatic Power AIS sends reliable data in any weather condition giving the identification of an AtoN, as well as status monitoring, reduction in the risk of collision with AtoNs, real time warnings when buoys move off position, and the creation of virtual and synthetic aids to navigation. The more information you are able to provide mariners about existing navigation conditions, the higher the level of safety you offer them.

AIS AtoN

Automatic Identification System

How It Works

AIS uses VDL (VHF Data Link) as the means for sending information through two VHF-FM Channels:

- AIS Channel A (Channel 87B: 161.975 MHz)
- AIS Channel B (Channel 88B: 162.025 MHz)

As represented in the figure 1, AIS systems from different vessels, platforms, buoys, etc. share information among themselves, creating a network, which includes speed of the vessels, position of Oil Platforms, Offshore Wind farms, location of buoys, and weather conditions, among many other pieces of information.

The technology behind AIS is called TDMA (Time Division Multiple Access), which divides 1 minute (Frame) into 2250 slots, as described in figure 2.

As this technology is based on time division, all AIS systems are synchronized to have exactly the same division among all devices.

Each AIS system needs to find free slots to transmit a message and there are different protocols that can be used to assign slots to users/devices. The two main protocols used for AtoN AIS are:

- **FATDMA (Fixed Access TDMA):** It is called fixed access as the AIS will have assigned, by default, the slots in which it will transmit the message. These slots could be reserved by a base station, making them unavailable for use by other devices. In this case, the AIS will consist of just a transmitter, as it will not need a receiver to look for free slots.
- **RATDMA (Random Access TDMA):** The random access AIS consists in looking for two consecutive free slots to send messages, but these slots are not pre-booked, so they will change every time. The AIS system will need a transmitter and two receivers, as it will need to map the channels to find free slots to then send messages.

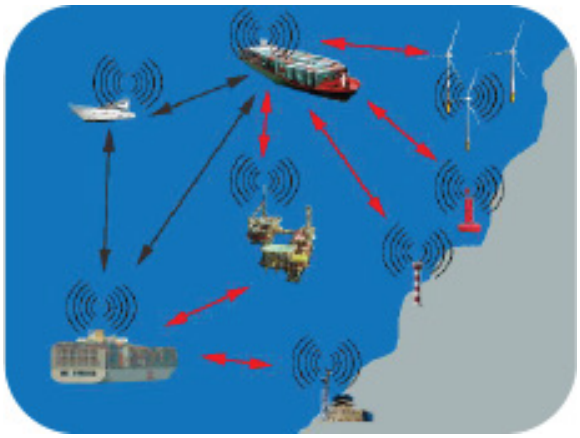

Figure 1

Pharos Marine Automatic Power ATONIS PRO AIS operates on the international VHF Maritime Mobile Band, enabling Port Authorities and other users to remotely monitor the real-time status of their AtoN installations.

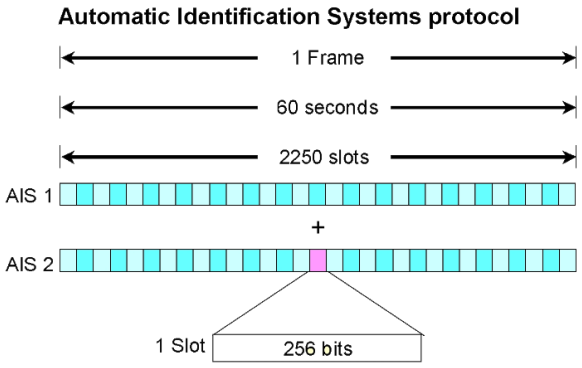

Figure 2

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Pharos Marine Automatic Power

AtoN MONITORING SOFTWARE

iNav AtoN Standard

BROCHURE

OVERVIEW

PMAPI has developed what we believe to be the only Aton Monitoring software you will need to buy. Ever! iNAV is not an AIS monitoring program with an add-on Aton module – it is a program designed from the start to monitor Atons.

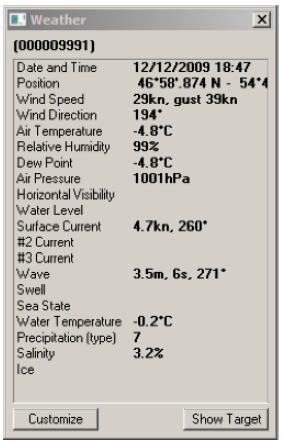
Then we added the AIS target monitoring for the full solution. The result? Simply what we believe to be the best aton monitoring software available. That's not our boast; it's what we've been told by our customers.

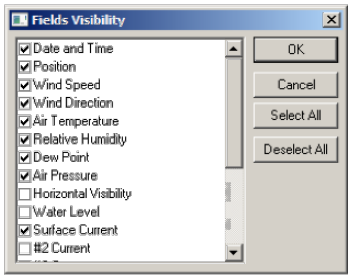
iNAV has all the "standard" features you'd expect in a best-in-class Program; Replay, Data Base support, Filtering, Tabular Data Reports, and the list goes on.

Additional Modules available for: Line Passage Statistics, Traffic Density Patterns, Dredge Monitoring, GSM Monitoring, Class B (FV) Radio Performance Monitoring and Enhanced Met/Hydro Displays

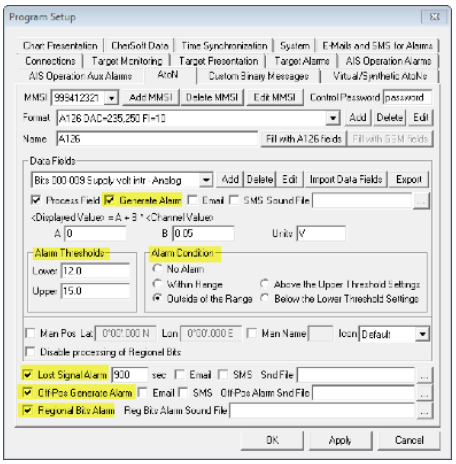
KEY FEATURES

- Integrated solution for all your AtoN monitoring needs
- Cost and time saving-iNAV is user-configurable so no need to go back to software provider for changes
- Decode ANY Application Specific Message (ASM)
- Decode different aton message formats for specific atons even if the messages have the same DAC/FI identifiers
- Assign email and SMS alarms for each aton and each parameter
- Seamlessly incorporate aton monitoring for non-AIS atons; GSM, UHF, Satcom – all can be displayed on iNAV with the same monitoring features as AIS atons

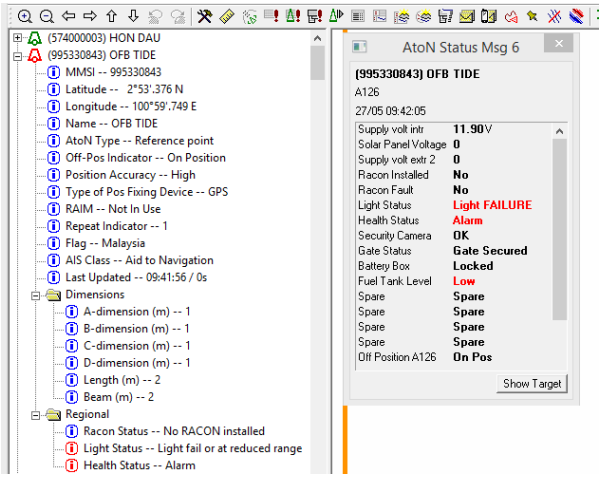




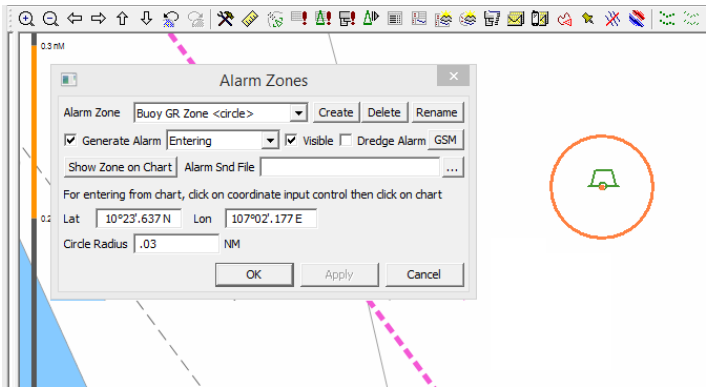
Customize your display for each ais station's message 6 and message 8 by naming each parameter with your own name and value units



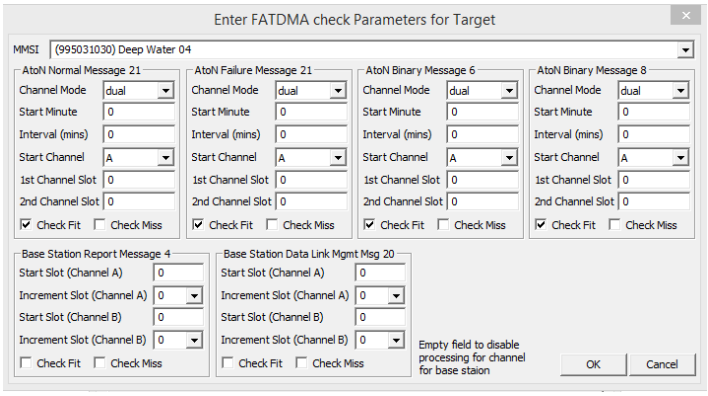
Assign an alarm to ANY reported parameter in ANY Message 6 or Message 8 with each parameter having its own limits and thresholds



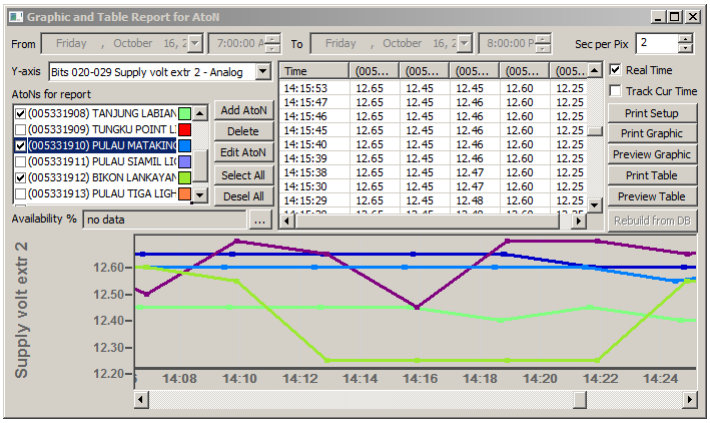
- Configure and transmit message 21 for virtual and synthetic atons by any connected base station
- Comprehensive aton message 21 and 6 display



- Calculate Aton Availability Statistics
- Configure and Transmit any Message 6/Message 8 and Message 12/14 by a connected Base Station
- Establish Collision Zones around Atons with alarm notification of violations



- Monitor scheduled FATDMA slot usage for each Aton and Base Station in your system



- Display Graphical Trending for ANY and ALL reported parameters for any number of Atons in one screen

**All values are subject to change without notice.*

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