R5 SECURE W-AIS

The new Saab R5 SOLID and Saab R5 SUPREME Secure W-AIS platforms are the successors to the pioneering Saab R4 Secure AIS system. These R5 systems offer full interoperability with the R4 Secure AIS system and a significant functional growth potential due to the flexibel design.

The AIS broadcasting standard is excellent for open information exchange between commercial ships at sea and between ships and shore stations. Open information sharing is however not always suitable for qualified users like Naval forces, Coast Guard, Police etc., who may have a need to exchange non-public information between their own units and still be able to receive the open AIS information.

Saab has developed the Saab Secure W-AIS solution which satisfies these re-quirements. Since 2005 Saab has been the leading provider of encrypted AIS.

The Secure W-AIS functionality can be offered as a complete seamless solution from vessels, aircraft, base stations and control centers.

Saab offers a complete portfolio of AIS solutions with the longest track history in the business, all tied in with the option of Saab Secure AIS technology.

THE SAAB SECURE W-AIS LINK

Public AIS operates on two global VHF channels, AIS1 and AIS2. The Saab Secure AIS link uses a third channel, selected by the user, ensuring minimum interference with public AIS communication.

The Saab Secure W-AIS data link can be used in parallel with AIS1 and AIS2, giving the Saab Secure AIS users the complete AIS picture at all times.

Several groups of Saab Secure users may operate on the same dedicated channel without interference by separation into up to eight different sub-groups using different Organization identities.

Our tailored data access scheme together with operation on the dedicated channel means unrivalled performance when compared to other encrypted AIS solutions, which typically operates on channels AIS1 and AIS2.

APPLICATIONS

The Saab Secure W-AIS solution gives the user access to a general data link, protected from public access.

The most common application is fleet tracking, giving the users real time data including identity, position, speed and course of other Secure W-AIS users. Applications also include protected exchange of:

- Text messages
- Relayed AIS and radar tracks
- Points of interest
- Tracks of interest
- Search patterns
- General binary data

R5 SECURE W-AIS KEYS

To ensure that high quality encryption keys are used Saab offers an advanced key generating tool, suitable for centralized issuing of fleet encryption keys. Keys can be an input manually from printout, sent over an existing encrypted link or conveniently loaded from USB storage.

The customer will be in full control of the issuing and handling of the crypto keys.

Up to 128 encryption keys can be input in advance. The keys will have a start time, and a configurable time of validity. When activated, each key may also set Saab Secure AIS channel, position report rate and Organization ID.Temporary user defined keys may also be used as a backup solution.

R5 CRYPTO SOLUTIONS

The R5 Secure W-AIS products are supplied with built-in crypto functions. No external encryption software is required, although supported if needed. In addition to Saab Secure the R5 Secure W-AIS systems offers STANAG 4668 Ed.2 Annex C and Annex D type of encryption. While limited in functionality, the STANAG modes may offer interoperational with other systems when needed as well as an encrypted AIS solution where a third channel is not available for Saab Secure.

R5 SECURE W-AIS OPERATIONAL MODES

Normal AIS mode (Active)

This is the Standard SOLAS mode. The system performs all the functions of a normal Class A AIS. Encrypted AIS is not used.

Silent mode (Passive)

The system will not broadcast anything over VHF. It will receive standard AIS messages and encrypted AIS messages

Tactical mode (Protected)

Transmit only encrypted data. Receive and process standard AIS messages on AIS channels as well as encrypted messages. The mobile units will automatically transmit encrypted position reports.

Hybrid mode

The encrypted data link is active and the unit receives both open and encrypted AIS messages. The unit may transmit both open and encrypted AIS data. In Hybrid mode it is possible to transmit virtual AIS data for AIS spoofing, while maintaining correct data on the encrypted data link.

External

Used for external encryption solutions. No autonomous transmissions will be made, only transmission of externally input binary messages

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TECHNICAL SPECIFICATION

Standards
- ITU-R M.1371-4
- IEC 61993-2 Ed.2
- IEC 60945
- IEC 61162-1/2
- Fully Class A type approved in Normal Mode

W-AIS functions
- Saab Secure Data link
- STANAG 4668 Ed.2
- STANAG 4669 Ed.2

Cipher support*
- DES, AES, Blowfish
Export restrictions may apply

Cipher Keys
- Up to 128 time limited keys
- Manual input
- External application input
- USB storage input
- Encrypted VDL message input

Additional Interfaces
- Pre TX pulse output
- External 1PPS input

Specifications subject to change without notice

- Support for external control Mode Switch
- Support for external TX control Switch

Spoofing
- 5 pre-stored alternate AIS identities
- Re-transmission of simulated targets
- Simulated positioning

Additional functions
- Colour coded decrypted targets
- Encrypted Text messaging
- User defined startup Operational Mode
- R5 Utility PC SW included

Saab secure mode only
- 30x faster data throughput compared to standard AIS.
- Relay of received AIS targets on Secure Link
- Relay of NMEA radar tracks over Secure Link
- Fleet separation with Organization IDs
- 1s to 6 min encrypted position report intevals
- User defined 25 kHz VHF channel 155-163MHz

See separate R5 SOLID AIS & R5 SUPREME AIS data sheets for physical data

R5 SOLID Secure W-AIS

R5 SUPREME Secure W-AIS

R5 SUPREME AIS Transponder

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