

R4 AIS Transponder System



The R4 AIS from Saab TransponderTech is a fully IMO-compliant, fourth generation transponder system, selected by a vast number of Commercial Shipping, Coast Guard and Navy customers world-wide.



The R4 AIS has also been the selected OEM product by some of the most prominent systems integrators in the Marine Industry. Unprecedented reliability through joint development and shared technology with Airborne products from Saab.

AIS solutions such as base stations and infrastructure from Saab have been selected by a large number of maritime administrations and VTS operators worldwide. Interoperability proven. The user-friendly multi-purpose display unit, outstanding interfacing capability and data validation ensure safe operation when connected to navigation sensors, radar and electronic chart systems.

The mariner's preferred choice

AIS products from Saab are specifically designed to support the mariner in mission-critical decision making. The R4 Class A transponder will satisfy all carriage requirements, but more importantly it will provide better situation awareness to the officer on watch. In the smaller vessel, the unique simplicity and versatility of the man-machine interface will allow the operator to carry out all important tasks required to operate the AIS system, using the multipurpose display unit only. In the integrated bridge system, the R4 will feed reliable data to virtually any electronic chart system and/or radar, and thus vastly improve the quality of the information presented. Predefined safety-related text messages will assist in quickly notifying other ships and VTS stations in distress situation. Furthermore, the R4 vessel transponder offers unprecedented VHF radio coverage, thus allowing the mariner to see further ahead. Users of Saab's AIS products have been providing us with feedback for years. This feedback is constantly used to further enhance our world-leading solutions.



SAAB

The ship owner's preferred choice

When making a vendor selection for AIS, product reliability is a key decision criterion. There have already been cases where authorities have forced ships to stay moored due to a malfunctioning AIS Transponder, resulting in tremendous cost to the operator.

At Saab, we are well aware of this fact and have designed our product to the same principal qualities as the corresponding airborne systems manufactured by our company. These systems have to fulfil the more stringent test specifications of the aviation industry. The results? AIS products that will exceed your expectations on reliability and maintainability. In the unlikely event of a system failure, all users of Saab's AIS technology supplied by Saab or one of our OEM partners will have access to our comprehensive network of support partners worldwide.

In summary, we offer you the best solutions, featuring type approved technology, solid under all applicable licenses.



Applications and key features

- Fully IMO-compliant
- Standard AIS features fully implemented in accordance with relevant specifications and recommendations
- Highly versatile multifunctional display unit
- Integrates with external differential GPS receiver, gyro compass, speed log, chart systems and radars
- Large number of input and output ports to support highly complex and integrated bridge systems
- Channel management capability (regional AIS frequencies)
- Easy access to standardized and proprietary safety-related text messages
- Fully upgradable to support future features
- Pilot plug integrated in display unit
- 1 W output power option when handling hazardous cargo
- Interoperable with Saab's Airborne AIS
- Supports AIS Class B "carrier sense" messages
- Supports transmission of Safety Related Messages (SRM) as well as general text messages

Optional

- Stand-alone navigation DGPS in accordance with latest standards
- Combined AIS/Navigation System with single display unit, using the R4 DGPS Sensor
- Silent mode and Secure communication for coast guards, blue forces and military applications
- GLONASS interface
- Precabled low cost junction box
- Gimble or flush mounting

R4 Inland AIS Transponder System

The R4 Inland AIS Transponder System from Saab complies with the CCNR Vessel Tracking and Tracing Standard for Inland Navigation. It is based on the normal R4 AIS Class A Transponder System with the addition of functions according to the Inland AIS specifications. The system consists of an R4 Inland AIS Display and an R4 Inland AIS Transponder Unit.

The R4 Inland AIS Transponder System provides functions for setting and transmitting Inland specific ship parameters such as blue sign status, loaded or

unloaded status, draught with centimeter accuracy, air-draught, hazardous cargo blue cone indication, euro ship identifier and Inland ship type.

It is possible to send an Estimated Time of Arrival (ETA) to for example a lock, bridge or terminal. The unit displays received Recommended Time of Arrival (RTA) sent in response to the ETA. Water level information transmitted in the AIS network by local authorities are displayed.



World wide sales & support network



Physical

Transponder

Size W x H x D: 144x85x226 (mm)

Display

Size W x H x D: 270x207x102 (mm)

Power

Input 24 V DC (22-30 V DC)

Power Consumption

Transponder 15 W (50 W peak)

Display 7.5 W

GPS Receiver (AIS internal)

Receiver: 12 ch (Ready for DGPS)

Frequency: L1 (1575.42 MHz)

Update Rate: 1 Hz

Position accuracy (SA off)

Position <1 m DGPS (CEP)

Position <16 m GPS (CEP)

Electrical Interfaces

8 data ports RS422

Port Default speed (bps)

Pilot In/Out 38400

ECDIS In/Out 38400

Long Range In/Out 9600

Sensor 1 In 4800

Sensor 2 In 4800

Sensor 3 In 4800

Aux In 9600

Display In/Out 57600

Transponder data port : 50 pin D-sub (M)

Transponder power: 9 pin D-sub (M)

GPS 50 ohm antenna connector TNC female

VHF 50 ohm antenna connector BNC female

Display data port: 18 pole Conxall Maxi-Con-X

Display power: 3-pole Mini-Con-X

Power and data interfaces to be connected on rail terminals or in junction box

Cables (recommended)

Antenna, VHF and GPS RG214/U

For sensors e.g. Gyro RFE-HFI 2x2x0.75 mm²

Transponder to Display RFE-HFI 4x2x0.75 mm²

Power cables Transponder LKM-HF 3x2.5 mm² and display

VHF Transceiver

Frequency 156-163 MHz

Output power 2/12.5 W (±1.5 db)

Channel bandwidth 25/12.5 kHz

Channel step 12.5 kHz

Bit Rate 9600 bps

Internals between

position reports

Modulation FM-GMSK/GFSK

Transmitter 1

Receivers 3

DSP Based Transceiver Sensitivity <-107 dBm

Environmental data

Protected environment (IEC 60945)

Operating temperature -15 °C to 55 °C

Complaint with the following Standards

R4 AIS Class A System

IMO Performance Standard for AIS (MSC 74(69) Annex 3)

ITU-R M. 1371-1

IEC 61993-2 (Standard for Class A mobiles)

IEC 61162-1/2 Edition 2 (NMEA 0183, Version 3.0)

IEC 61108-1 Edition 2 (Option)

IEC 60945 (ed 4)

IALA Technical clarifications on ITU R M.1371-1

IALA Guidelines on AIS

R4 Inland AIS System

CCNR Vessel tracking and tracing standard for Inland

Navigation Ed 1.0

Type approvals (R4 AIS Class A System)

Wheelmark

FCC

USCG

Membership Organizations



Specifications subject to change without notice

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