SAFETY
NAVIGATION
AWARENESS

R4A AIS
Airborne Transponder

Saab TransponderTech launches R4A Airborne AIS, the second generation of Search and Rescue (SAR) transponder, using the latest technology to achieve the highest performance and reliability.

Saab TransponderTech is the world leader in the field of AIS with several years of experience in design, manufacture, sales and support of transponders based on the patented SOTDMA technology. Solutions are also available for shipborne AIS, base stations and infrastructure as well as for Aids to Navigation. Our global sales and support network ensures seamless operation in virtually any situation.

The international Maritime Organization's (IMO) carriage requirement for Automatic Identification System (AIS) will substantially enhance safety at sea and give the ship's Officer Of the Watch (OOW) improved situation awareness for collision avoidance. AIS will also provide better land-based services to mariners from VTS and improve security and safety in ports and along coasts.

AIS installed in aircraft will improve Search and Rescue (SAR) operations and enable efficient monitoring, fleet management and surveillance.

The R4A Airborne AIS applications:

- Monitoring of Surface Traffic; to be able to keep track of AIS equipped vessels and their destinations.
- Maritime Surveillance/Coast Guard Patrol; together with a radar system, coast guards can find vessels without AIS or faulty AIS parameters, thus increasing security.
- Search and Rescue (SAR); helps locate vessels in distress and communicate help is on the way etc.
- Homing for Maritime Helicopter Operations; find the ship that the helicopter is supposed to land on.
- Fleet Management; to keep track of a fleet of helicopters serving oil-rigs, for example.
- Mission Control and Coordination; in SAR and military operations involving several helicopters and vessels.

The R4A Airborne AIS Transponder main features:

- Tactical Datalink; the enabler for mission control and other functions relying on communication between aircraft and/or operations center.
- Other Customized Datalink Applications.
- Easy configuration and status check by Windows-based configuration software.
- Selectable transmit and receive modes, including encryption.

Optional functionality

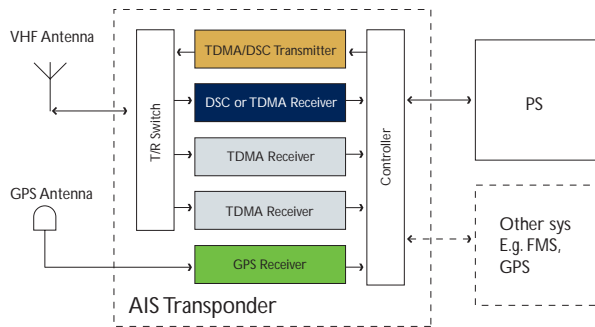- Additional support for ARINC 429 messages.
- DSC support.

The R4A AIS Transponder is an ITU-R M.1371-1-based SAR AIS transponder and can also be used for tactical communications. It can operate either in AIS mode as a SAR station, or in one of several tactical modes, allowing tactical communications on separate channels. If selected, the transponder can encrypt data transmitted on tactical channels.

The AIS transponder is Qualified to RTCA DO160D categories for "Helicopter" and "Fixed wing, Turbojet and Turbofan (subsonic and supersonic)" in conjunction with "Fuselage" and "Instrument Panel, console and Equipment Rack". This means that the transponder can be installed in most compartments of an aircraft. The transceiver unit contains three independent VHF receivers and one transmitter, which alternates transmissions between the operating TDMA channels. The third channel can be used for coordination and sending tactical data between aircraft and the operations center on the ground.

The R4A Airborne AIS will receive all data from AIS equipped vessels traveling within the VHF coverage of the aircraft. This will enable the user to monitor and follow information about ship movements.

Imagine the improvement in control, surveillance and safety…

Physical
Size W_H_D:	280_144_87 (mm)
Weight:	2.8 kg

Power
Input(main):	24-28 V DC,
Power Consumption:	20W (50W peak)

GPS Receiver
Receiver:	12 channels
Frequency:	L1(1575 MHz)
Update Rate:	1 Hz

Electrical Interfaces
4 RS422 Data Ports (38999 series 3)
1 Tx 2 Rx ARINC 429

GPS 1pps input
GPS 50_ antenna connectors   (TNC female)
VHF 50_ antenna connectors (N female)

VHF Transceiver
Frequency:	156-162.5 MHz
Channel Bandwidth:	Selectable 25/12.5 kHz
Output power:	2/12.5W (±20%)
Bit Rate:	9600 bps
Modulation:	GMSK/FM/FSK

Interval between position reports 1-60 sec
One transmitter

Three receivers

Applicable standards
RTCA DO-160D Environmental Conditions and Test Procedures for Airborne Equipment
ITU-R recommendation for AIS (ITU-R M. 1371-1)
RTCA DO-178B Software Considerations in Airborne Systems

IEC 61993 -2

ISO 9001   TickIT

Membership Organizations

SAAB