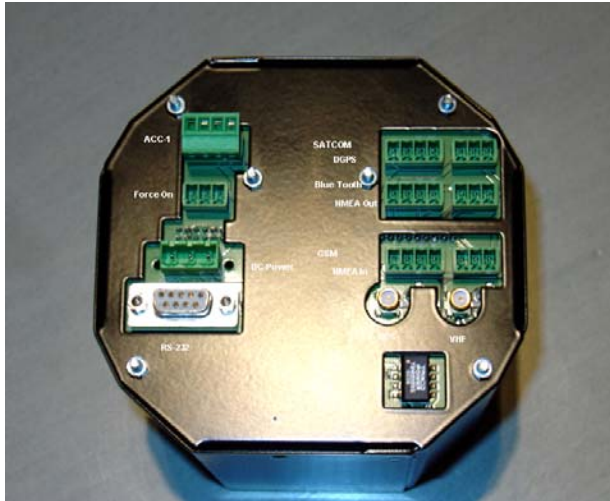


ATONIS

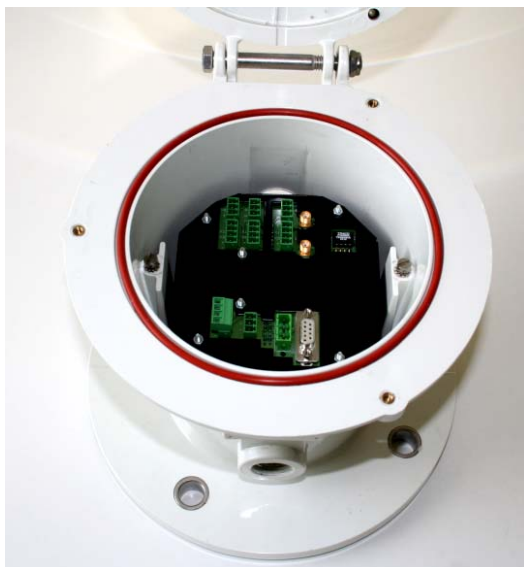
Aids to Navigation

AIS Transponder



ATONIS AIS Transponder

The modular design of ATONIS makes it possible to have a low-cost platform for less complex applications but a system that is scalable to permit use in the most complex applications by adding hardware modules. This means the AtoN Authority does not pay for unused components. And it allows for repair of a unit by replacing the faulty component board rather than the whole unit.



ATONIS AIS Transponder
fitted in 155mm Lantern Housing

ATONIS is a unique, state-of-the-art, modular, **Aids to Navigation Information System** designed to operate seamlessly in an AIS VDL environment using FATDMA or optional CSTDMA and RATDMA protocols. It is the first AIS AtoN transponder designed to be fully compliant with the governing directives for AIS AtoN transponders; IALA Recommendation A-126, ITU-R M.1371 and IEC Standard 62320-2. It is designed to fit within a standard 155mm lantern housing, but can also be mounted in an external enclosure, suitable for use on buoys and offshore platforms.

ATONIS is available in Type 1, 2, or 3 models and has the capability to transmit all standard AIS AtoN, Weather and Hydrological messages, as well as monitor and control the AtoN equipment installed on buoys and offshore platforms. Optional software can be incorporated to configure ATONIS to permit the automatic activation of lights or signals when vessels come within range, transmit a safety-related Message 14 when a vessel comes within a pre-set range to a hazard, transmit Message 21 for synthetic or virtual AtoNs, or store a record of ships that come within a pre-set range for later downloading to a shore station. Special applications, such as transmitting channel management command Message 22 in areas using regional AIS channels, or storing ship activity in areas not covered by a shore-based AIS infrastructure and reporting this data via long-range SATCOM, are also possible as optional features.

ATONIS consists of a modular **Base Board** responsible for all scheduling, status checks, generation of messages, data storage and for controlling the modular subsystem boards and components connected to it. Subsystem boards and components that can be connected to the Base Board are the **AIS Transmitter** board, **AIS Receiver** board(s), **GSM/GPRS Radio** component, and an **Inmarsat D+** component, depending on the particular application, as well as **Met/Hydro** sensors.

ATONIS, when equipped with Automatic Power's proprietary ACC-1 controller, provides the AtoN authority with a very versatile unit by providing (4) digital I/O interfaces, (4) analog interfaces and RS-232/485 interfaces permitting extensive monitoring and control of AtoN equipment.

ATONIS GPS supports DGPS (WAAS and EGNOS) for high positioning accuracy. An optional IALA Beacon receiver can be connected where there is need of DGPS operation based on the IALA Beacon Long Wave System.

ATONIS configuration is accomplished via RS-232. A Bluetooth™ connection for in-field servicing without having to go aboard or lift a buoy to access the transponder is available as an option.

ATONIS AIS TRANSPONDER Specification



Fitting	Fittable within 155mm Lantern Housing or mounted in suitable enclosure	
Input Voltage	9 to 36 VDC	
Electrical Isolation	DC isolated, 1500VDC insulation barrier to prevent galvanic currents	
Protection	Overcurrent and Reverse Polarity protection	
Power Consumption @ 12 VDC	Continuous Mode ¹ : 250 mW (0.5 Ah per 24 hour period) Lean Operation Mode ² : 25 mW (50 mAh per 24 hour period)	
Ports	RS-232 – Configuration Port 1 – SATCOM (default) Port 2 – dGPS (default) Port 3 – Bluetooth (default) Port 4 – Opto-isolated NMEA 0183 Out (default)	Port 5 – GSM/GPRS (default) Port 6 – Opto-isolated NMEA In (default) Port 7 – AtoN (ACC-1 default) Port 8 – Control (default)
Temperature Range	-15 ° to +50°C	
Humidity	95% relative humidity at 30°C	
Positioning	GPS/DGPS using SBAS Service (default); dGPS position accuracy < 3 m 95% DGPS using IALA Beacon Service/SBAS (optional) Message 17 (optional)	
Configuration	Via RS-232 or optional Inmarsat D+, AIS, GSM/GPRS, or Bluetooth™ connection using COTS software (e.g., MS Hyper Terminal)	
Capabilities	Type 1 FATDMA Type 2 FATDMA with optional receiver module installed) Type 3 FATDMA and RATDMA Transmit AIS Messages 21, 6, 8, and 14 Optional applications, such as; remote control, automatic broadcast of Message 21 for virtual and synthetic AtoNs, transmission of safety related Message 12 when AIS vessels come within pre-set range to highlight wrecks, wind farms, etc., storing a record of ships which come within range for later downloading via AIS, GSM/GPRS or Inmarsat D+	
VHF Antenna	External	
GPS Antenna	External	
Standards	IALA A-126; IEC 60945 and IEC 62320-2; ITU-R M.1371	
Certifications	(pending) CE, R&TTE Directive (EC/1999/5) FCC, IC	
Transmitter Module	FM-GMSK	
Frequency Range	155 – 163 MHz, 25kHz bandwidth, configurable	
Power Output	12.5 Watts (optional low power setting)	
Frequency Stability	± 2.5 ppm	
Receiver Module (Types 2 and 3 only)		
Type	FM-GMSK	
Frequency Range	155 – 163 MHz, 25kHz bandwidth, frequency agile	
Frequency Stability	± 2.5 ppm	
Sensitivity	< -112 dBm PER 20%	
Spurious Response Rejection	> 70 dB	
Adjacent Channel Selectivity	> 70 dB	
Intermodulation Response Rejection	> 80 dB @ -112 dBm	
Blocking or Desensitization	> 84 dB	
Spurious Radiation, conducted	< -57 dBm	
Co-channel Rejection	Better than -10 dBm	

¹ AIS AtoN report every three minutes IAW ITU-R M.1371

² Monitoring of AtoN status, buoy position, and AIS reporting once every 10 minutes. Lower duty cycles will result in lower power consumption.

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