

Satellite-AIS Receiver

AIS-MS03

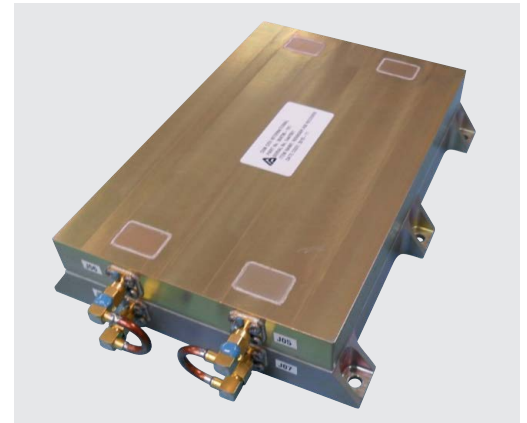
AIS-MS03 is the latest addition to Honeywell's range of high-performance multi-mode receiver products for the detection of marine traffic from space. It is a low-power AIS receiver optimized for the highest first pass detection rate.

This latest technology features a direct sampling receiver and is capable of performing simultaneous On-Board Processing (OBP) and raw spectrum capture for On-Ground Processing (OGP) while on-board memory allows storage of data from multiple orbits. This functionality is complemented by the ability to reprogram the equipment in-orbit with the aim of updating its algorithms and improving performance characteristics.

Automatic Identification System (AIS) is a terrestrial system designed to locate, identify and track maritime vessels. Digital information transmitted by ships via VHF automatically reports the vessels' speed, direction, heading and a number of other vessel-specific parameters. By their nature, traditional shore or marine based AIS receivers have a very limited radio range. Satellite-based AIS receivers have the ability to overcome this limitation by covering a much wider area by receiving AIS signals from Low Earth Orbit.

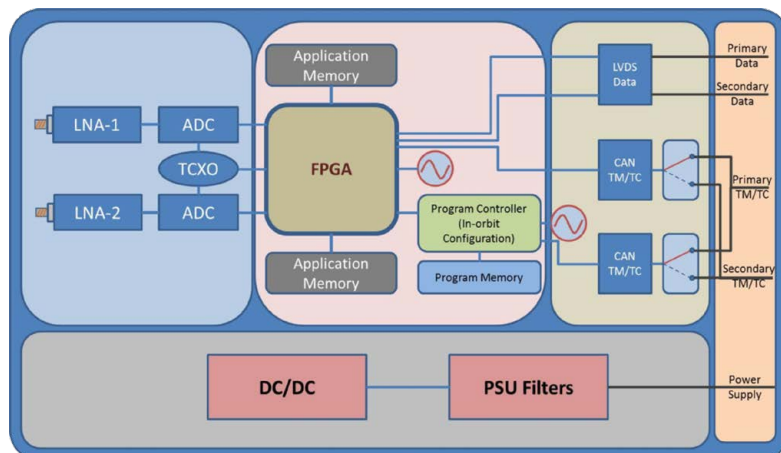
The AIS-MS03 is a two channel, multiple mode S-AIS receiver with built-in memory banks able to store data accumulated across a single orbit (possible multiple orbits). It is designed with specific attention to power and size aiming to address the limited space and reduced battery capacity of small satellites.

Honeywell was one of the first companies to develop and offer to the space market a qualified S-AIS receiver for Low Earth Orbiting (LEO) missions and has successful heritage with this technology flying on Resourcesat-2, ADS1b, M3M and PAZ missions. Additional units have been integrated onto the NovaSAR-S spacecraft, with launch planned for 2017.



Main features:

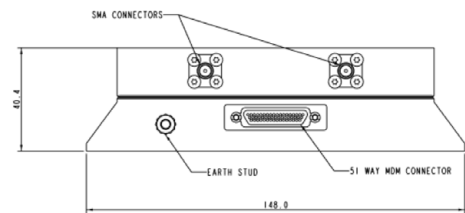
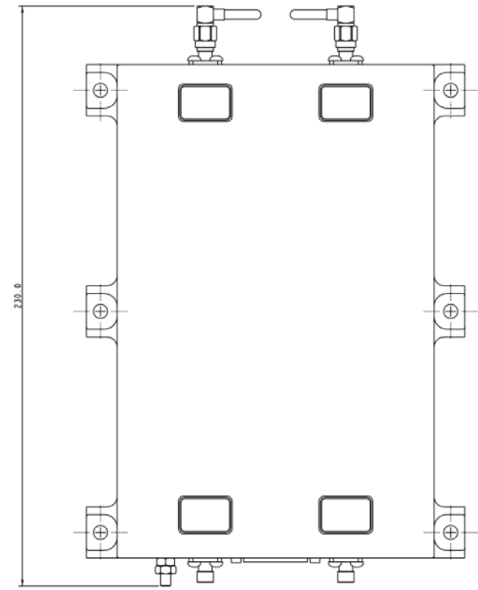
- Wide receiver bandwidth
- Digital signal processing of all AIS channels per polarization
- Large dynamic range in excess of 50dB
- Better than -118dBm sensitivity
- Configurable raw spectrum capture and On-Board Processing capability
- In-Orbit re-programmable receiver
- Built-in 8GByte NAND Flash memory-based data recorder
- Separate and independent controller for in-orbit FPGA reconfiguration
- Optimized for low power consumption



AIS-MS03 Module

Specifications

GENERAL	
MASS	1400g
DIMENSIONS	228 x 180 x 41 mm
DC POWER CONSUMPTION	6 W maximum, with two channels powered
SUPPLY VOLTAGE	28V ± 6V
OPERATING TEMPERATURE RANGE	-10°C to +50°C
NON-OPERATING TEMPERATURE RANGE	-35°C to +80°C
RADIATION TOLERANCE	10 KRad
RECEIVERS	
POLARIZATIONS	2, coherent
AIS CHANNELS PER POLARIZATION	4
DEFAULT CHANNEL FREQUENCIES	161.975 MHz, 162.025 MHz, 156.775 MHz, 156.825 MHz,
SUPPORT FOR FUTURE FREQUENCIES	161.950 MHz, 162.000 MHz
CHANNEL BANDWIDTH	25 kHz
SENSITIVITY	< -118 dBm (10% AIS Packet Error Rate)
SIMULTANEOUS DYNAMIC RANGE	55 dB
RF INPUT BANDWIDTH	156.0 MHz to 163.0 MHz
FREQUENCY STABILITY	±0.5 ppm
PHASE COHERENCY	< 5°
PASSBAND RIPPLE	< 1dB
DIGITAL PROCESSOR	
RAW SAMPLE RATE	> 28.8 Ksps
SAMPLE BIT DEPTH	12 bits
OPTIONAL BUILT-IN STORAGE CAPACITY	8 GB Flash (4 x 2GB banks)
INTERFACES	
RF	2 x SMA-F, 50 Ohm
TM/TC	Dual redundant CAN bus
HIGH SPEED DATA	Dual redundant Synchronous Serial LVDS Interface up to 50 Mbps



For more information

To find out more about our offering, visit aerospace.honeywell.com/en/product-listing/space or contact us at aero.marketing@honeywell.com

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