Astronode S



Product Description

The Astronode S is a direct-to-orbit satellite communication module, connecting your IoT devices to Astrocast's network. It enables the tracking and monitoring of devices with bidirectional satellite communication, with over 10 years lifetime off a single battery. The module features an SMT castellated pads form factor for trouble-free integration and soldering onto a PCB.

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Low Power

The Astronode S features a very low peak power consumption. This offers a more predictable battery lifetime as transmission power does not depend on the local network structure or regional RF band regulations.



Low Cost

The use of L-band allows for smaller antennas, lower-cost RF components and better propagation than other bands. This reduces both size and cost of IoT applications.



Hazardous locations

The Astronode S is suitable for integration into devices intended to be ATEX/IECEx certified. The module works at low power, and without current pulses, it is also free of any built-in voltage step-up converters.

Bidirectional Communication

The module, with its integrated proprietary chipset, handles worldwide direct-tosatellite communication over the L-band within the 1-2GHz spectrum. The encrypted communication enables acknowledgements, asset commands and the deployment of security patches. Both the satellite and ground station networks ensure maximum reliability thanks to a redundant setup.

Overall technical characteristics of the Astronode S and Service

Size	Approx. 31 x 35 mm ¹⁾
Supply voltage nominal	3.3V DC +-5%
Peak power consumption (in TX mode)	<0.35W
Deep sleep current	400nA (LPUART deactivated, wake up pin available)
Operating environmental range	-3085°C ²⁾
Serial Interface	UART
Encryption	2-level 256-bit AES with unique device keys
Variable user payload size per message (Total messages no. subject to data plan)	1-160 Bytes
End to end network latency ³⁾	Maximum <15min; Average approx. 7.5min (Location dependent).
Data access	API or Online portal

¹⁾ Dimensions to be finalized

²⁾ Preliminary subject to change

³⁾ This is the latency after deployment of the full network, our initial commercial service offers an average of a few connections per day.

Applications

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Remote asset tracking and monitoring

- Tank monitoring (fuel, water, gas, chemical, agricultural)
- Maritime asset and small vessel tracking
- Livestock and animal tracking
- Ag-Tech and fisheries
- Container tracking (intermodal, rail, speciality cargo)
- Pipeline monitoring
- Refrigerated cargo
- Vehicle and trailer tracking
- General asset tracking
- Personal satellite communication devices and SOS systems

Environmental monitoring

- Data loggers, water monitoring weather stations, beehives, endangered animal tracking
- Soil and pollution sensors





Satellite Network

Astrocast's nanosatellite LEO Network has brought together sustainability and state-of-the-art technology. Our existing satellite network, once fully completed, will enable low latency global transmission of messages with additional unicast and multicast downlink capability. Our Swiss-made satellites are equipped with propulsion giving us greater control of the entire network and the ability to avoid unlikely collisions with space debris whilst assisting with the deorbiting of end-of-life satellites.

Antenna

Astrocast supplies a standard cost and size optimized through-hole mounted patch antenna for fully integrated designs. External waterproof antennas are also available. Should you need an application-specific antenna implementation, we will be happy to support you with our expertise.

As Astrocast's RX and TX signals are positioned either side of the GNSS signal band, this also allows for a single specialist antenna to be used for both communication with Astrocast's network as well as for use as a GNSS antenna.

Astrocast

Headquartered in Switzerland, and in partnership with ESA, Airbus and Thuraya, Astrocast is developing a world-class network dedicated to IoT applications. Through our collaboration with Airbus and LETI, we have also developed a low-cost, low-power ASIC that will form the core of the Astronode S. Astrocast was founded in 2014 by the developers of SwissCube, the longest-lasting, operational Nanosatellites in space.

Questions?

Get in touch astrocast.com/contact-us



