

"Aqui onde a terra se acaba e o mar começa..."



陽翼先進科技有限公司  
Your Gateway to the Stars

*HelioX Cosmos provides you flexible, affordable and responsive solutions ranging from small satellite launch business to space outreach activities and together explore the NewSpace market.*

## SOLUTIONS

SPACE LAUNCH SERVICE / BUSINESS DEVELOPMENT

SATELLITE COMPONENTS / TECHNICAL SUPPORT

SPACE EDUCATION / OUTREACH



# CubeSat

## COMMUNICATION MODULE PRODUCT

# TRIPLE-A Payload Module

## APRS / AIS / ADS-B

### Description:

**APRS** (Automatic Packet Reporting System) enables real-time repeat\* or forward positioning and data of ground tracking equipments, such as vehicles, animals, etc.

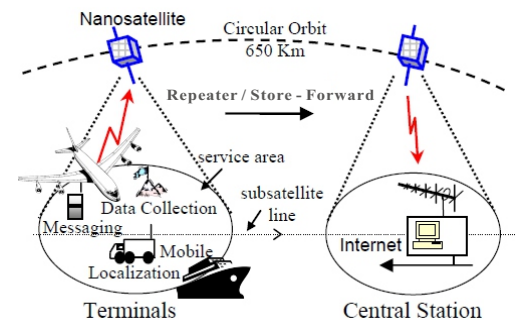
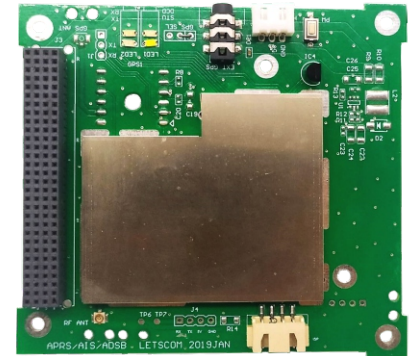
**AIS** (Automatic Identification System) receiver picks up vessels position that use an AIS A/B channels transponder.

**ADS-B** (Automatic Dependent Surveillance – Broadcast) technology which enables aircrafts to determine their position via satellite and then broadcast it. This information can be received by Cubesat which enables aircrafts to be tracked.

*\*Real-time repeat: This optional function is disabled. The packet data real time repeater function is determined by frequency coordination and project application.*

**Triple-A** (APRS / AIS / ADS-B) payload module effectively tracks and collects a large number of land and sea (surface) objects, as well as collects traffic information for commercial airliners (aerial), to achieve acquisition of APRS/AIS/ADS-B data globally.

In the figure shown on the right, the data collect function could be configurable for repeater or store-forward to the ground station.



### Applications:

The **Triple-A (APRS / AIS / ADS-B)** payload “Real Time Repeater” / “Store & Forwarding” applications are:

- ◆ **APRS** - Vehicle and vessels positioning with data collection
- ◆ **APRS** - Ecological & seismic / tracking & detection: birds, animals, landslides
- ◆ **APRS** - Ocean windmills, widespread area power grid management
- ◆ **AIS** - Sea surface drifts, ocean current tracking and tide wave change monitoring
- ◆ **ADS-B** - Receiving Latitude, longitude, altitude and direction information with ICAO codes
- ◆ **ADS-B** - Space-based flight information enables broad coverage areas compensating geographic obstacles; flexible, responsive flight data for advanced air traffic controls

### Payload Specification:

#### General Specification:

- Power Supply: 5V
- Power Consumption: 800mW.
- Operating Temperature: -20°C to +80°C
- Temperature Sensor
- Dimension: PC104 size compatible

#### APRS Specification:

- Receive Sensitivity: -126 dBm
- RX Frequency: 140-175MHz / 400-480MHz
- TX Power: 30/27dbm (optional)
- Modulation Schemes: FSK
- Data Rates: AX.25 1200bps
- RF connector: IPX
- Data Interface: UART TTL standalone.

#### AIS Receiver Specification:

- Function: AIS Class A and B
- Frequency: 161.975/162.025MHz
- Data Rate: 38,400bps
- Receive Sensitivity: -116 dBm
- RF connector: IPX
- Data Interface: UART TTL standalone.

#### ADS-B Receiver Specification:

- Dual frequency receiver for 897MHz-UAT and 1090MHz ADS-B
- RF Sensitivity: > -95dBm
- Data Interface: UART TTL standalone 57600bps standalone.
- RF Connector: IPX

#### APRS / AIS / ADS-B Receiver

