UNISEC
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Introduction

Hyperion Technologies B.V.

Founded August 2013

Started activities in 2011

Design and manufacturing

of products for small satellites
Main activities

- Development of subsystems and components for small satellites

- Customer specific development of hardware and software, mainly for small satellites and other high-tech applications

- Consulting on small satellites and missions
Vision

- Develop high-performance, best-in-class systems for small satellites
- Use of COTS components when available and possible
- Extensive testing
  - Thermal vacuum
  - Vibration
  - Radiation
- High Performance and High Reliability
  - Robust
  - Failure tolerant
  - Similar to professional systems
Product overview

Products developed by Hyperion Technologies

Various versions of products (options)

Customer specific developments

Future products
ST200

World’s smallest star tracker
Stand alone device
< 30 arcseconds resolution (3-sigma)
Magnitude 6 stars
600 mW average power consumption
5 Hz update rate
Standard and custom baffles available
Hyperion’s reaction wheels

The reaction wheels allow for control the attitude of the satellite

<table>
<thead>
<tr>
<th>HT-RW210: optimized for 1-3U cubesats</th>
<th>HT-RW400: Optimized for 6-12U cubesats</th>
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</thead>
<tbody>
<tr>
<td>Dimensions: 25x25x15 mm³</td>
<td>Dimensions: 50x50x27.5 mm³</td>
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Magnetorquers

HT-MTQ200 Series
• 80x11x11 / 25x19x19 mm³
• Intended for small (up 4U) CubeSats
• Highly efficient
• Two models:
  • HT-MTQ200.20: 0.2 Am², 100 mW, boost to 1 Am²
  • HT-MTQ200.15: 0.15 Am², 300 mW, boost to 0.25 Am²

HT-MTQ400 Series
• 80x12x12 / 65x16x16 mm³
• Intended for 6-12U CubeSats
• Highly efficient
• Two models:
  • HT-MTQ400.40: 0.4 Am², 300 mW, boost to 2 Am²
  • HT-MTQ400.50: 0.5 Am², 500 mW, boost to 1.5 Am²

Drive electronics can be tailored to application.
Hyperion’s iADCS

The integrated ADCS determines and controls the attitude of the satellite

<table>
<thead>
<tr>
<th>HT-iADCS100: intended for 1-3U cubesats</th>
<th>HT-iADCS400: intended for 6-12 U cubesats</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions: 90x96x32 mm³</td>
<td>Dimensions: 96x96x66 mm³</td>
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</table>
iADCS-100

¼ unit CubeSat compatible

Pointing knowledge < 30 arcseconds

Pointing accuracy << 1 degree

< 1.8 W power consumption (< 3W peak power)

Fully autonomous modes:

• Target tracking
• Sun pointing
• De-tumbling
• Nadir pointing

3 axes stabilization for up to 3U CubeSats

• Reaction wheels
• Magnetorquers
iADCS-400

0.7 unit, CubeSat compatible

Pointing knowledge < 30 arcseconds

Pointing accuracy << 1 degree

< 6 W power consumption (peak power)

Fully autonomous modes:
  • Target tracking
  • Sun pointing
  • De-tumbling
  • Nadir pointing

3 axes stabilization for 6-12U CubeSats
  • Reaction wheels (30 mNms, up to 2 mNm torque. 60 mNms is optional)
  • Magnetorquers (0.5 Am2)
iACS-200

¼ unit CubeSat compatible

Pointing knowledge: depending on sun-sensors and magnetometers

Pointing accuracy < 3 degrees

< 1.2 W power consumption (< 3W peak power)

3 axes stabilization for up to 3U CubeSats
  • Reaction wheels
  • Magnetorquers
  • External sun-sensors
  • Internal IMU
  • Optional control software
Hyperion’s propulsion systems
Increasing mission life time from days to years

PM400 Propulsion unit
• Dimension: 2U
• Thrust: 1N
• Bipropellant
• 3D printed
• Safe and non-toxic

Your satellite where it has to be
• Orbit maintenance
• Orbit control
• De-orbiting
Hyperion’s imager
The imager is based on star tracker heritage

HT-IM.200.16: currently available for CubeSats

- Dimensions: 30x32x38 mm³
- 5 Hz image rate
- 4 Mpixel resolution
- Fast USB-interface available
- Monochrome or color version available
Hyperion’s payload processor

The payload processor allows for high performance flexible computing with a small footprint

**CP400.85: currently available**

Dimensions: 50x20x5 mm³

- 500 MHz
- 512 MB Ram
- Plug and play ready design
- Linux based operating system
- “Desktop computer in a satellite”
Contact information

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