



Crystalspace AD1U Attitude Control and Determination System

Overview

Crystalspace AD1U attitude determination and control system is the smallest and the most advanced system in the market. It suits well for densely packed 1, 2 and 3 unit CubeSats. System is able to determine satellite attitude with accuracy of 0.1 deg and control attitude with accuracy of 1 deg. Wide variety of algorithms are available out of box. Furthermore, product comes with Crystalspace PC control software to help with system setup and calibration. Each sold unit has gone through acceptance testing.

Features

- 5 mm thick and weighs only 50 g
- All critical components are doubled
- Radiation hardened by design
- Integrated magnetic, acceleration, gyroscopic & temperature sensors.
- Built in magnetic torque drivers
- Connectors for 6 sun sensors, 3 magnetic torquers and reaction wheels
- Architecture flight tested on successful ESTCube-1 satellite
- Average power consumption: < 200 mW
- RS485, RS422, UART or SPI controlled
- Compatible with CubeSat Kit and other standard components
- System can be easily tested, controlled and calibrated with Crystalspace control application

Available options

- Crystalspace reaction wheels
- Side panels with integrated sun sensors and magnetic torquers
- Stand alone magnetic torquer board

Available Control Algorithms

- Detumbling
- Sun pointing
- Nadir pointing
- Reaction wheel desaturaton
- Custom algorithms available on request

Performance

- Attitude determination accuracy: 0.1 deg
- Attitude control accuracy: 1 deg

Product Properties

- Dimensions: 96 mm x 90 mm x 5 mm
- Temperature range -40°C to 85°C
- Mass: < 100 g
- IPC-A-610 Class 3 assembly
- Vibration and shock tested
- Thermal vacuum tested