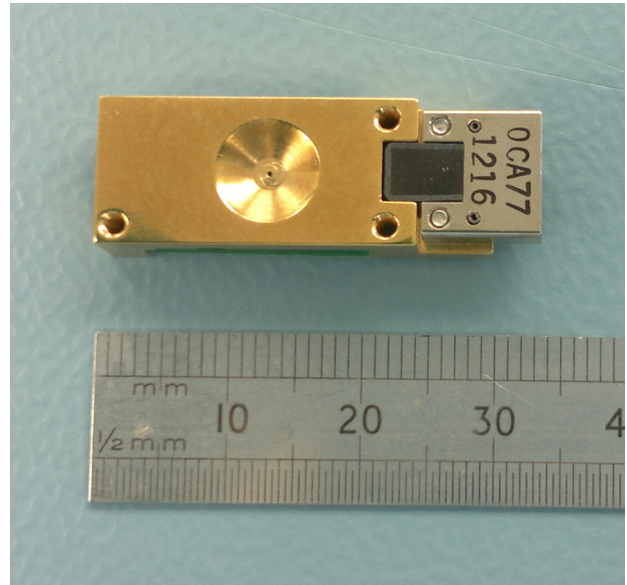


Cubesat Sun Sensor



The cubesat sun sensor determines the spacecraft body angles with respect to the sun. The sensor is extremely small and light to minimise the demands on nano-spacecraft. The sensor achieves much higher measurement accuracy than traditional photodiode cosine sensors.

The sensor consists of a CMOS PSD detector sitting behind a small pin-hole with a field of view of ± 57 degrees. The device produces four analogue voltages that are dependant on the incident angle of sunlight in the horizontal and vertical directions. Each sensor is supplied with a calibration algorithm that calculates the sun vector from these four voltages (and a reference voltage) to an accuracy of 0.5 degrees.



Applications

- Accurate determination of sun-angle
- Six sensors can achieve full sky coverage
- Used in conjunction with a magnetometer for simple attitude control
- Can be used as safe-mode sensors on gyro or star-mapper controlled systems
- High performance cubesat ACS systems

Features

- PSD architecture
- Good accuracy
- Wide field of view
- Ultra Small size and low mass
- Low power
- Simple analogue interface

Qualification

The Cubesat Sun-sensor will fly on the TDS-1 satellite in 2012 and two other cubesats in 2013.

About SSBV

SSBV Space & Ground Systems is a member of the SSBV Aerospace and Technology Group which has 27 years of experience in providing systems to the Space industry.



Specifications

Functional Characteristics	
	Field of view: 114°
	Update Rate: > 10 Hz (limited by customer ADC)
	Accuracy: < 0.5°
Physical Characteristics	
	Mass: < 5 grams
	Power: < 10 mA
	Size: 33mm x 11mm x 6mm
Environmental Characteristics	
	Operating temperature: -25°C to +50°C
	20g rms random, 1000g shock (Qualification levels)
	10krad total dose (component level)
Interfaces	
	Power Supply: 5 V
	I/F: 5 analogue channels
	Connector: 9-way Nano-D

Contact information

For further information, please consult our website or contact us at:

SSBV Space & Ground Systems
Building 1, Anchorage Park
Robinson Way,
Portsmouth, Hampshire
PO3 5SA
United Kingdom

T: +44 2392 626 300
F: +44 2392 626 348

marketing@ssbv.com
www.ssbv.com