

The sun sensor determines the spacecraft body angles with respect to the sun. It accepts configuration commands and outputs digital angles and telemetry over a serial interface to the on-board computer. The unit is powered from unregulated DC power from the spacecraft.

The front surface of the sensor is a mirror with slits cut in the reflective metal. Sunlight passes through these slits and then through an optical filter. Below this is an array of photosensors interfaced to a micro-controller.

The charge on the photosensors are read by the microcontroller, which processes the image and computes the sun vector. The vector and other telemetry is returned to the spacecraft through the serial interface.



Applications

- Accurate determination of sun-angle
- Four 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

Features

- Digital architecture
- High accuracy
- Wide field of view
- Small size and low mass
- Low power
- Simple to interface

Qualification

The qualification of the Fine Sun Sensor comes from 14 on-orbit sensors on 4 LEO satellites.

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 140°
	Update Rate 5 Hz
	Accuracy +/- 0.1° (2 sigma)
Physical Characteristics	
	Mass: 35 grams
	Power: 7.5mA average, 26mA peak
	Size: 34mm x 32mm x 21mm
Environmental Characteristics	
	Operating temperature -25°C to +50°C
	25g rms random, 5000g shock
	20krad total dose (component level)
Interfaces	
	Power Supply: 28V DC nominal (5V to 50V)
	Digital I/F: UART, SPI, I2C, CAN or RS-485/422

Contact information

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