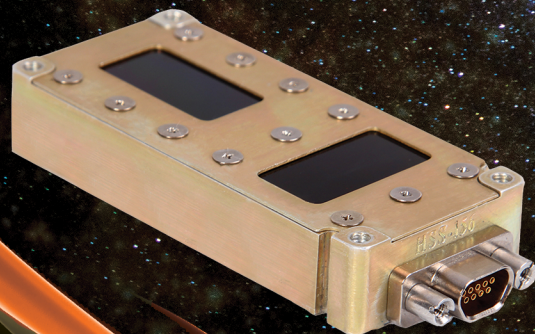


# HSS-04

## DIGITAL SUN SENSOR



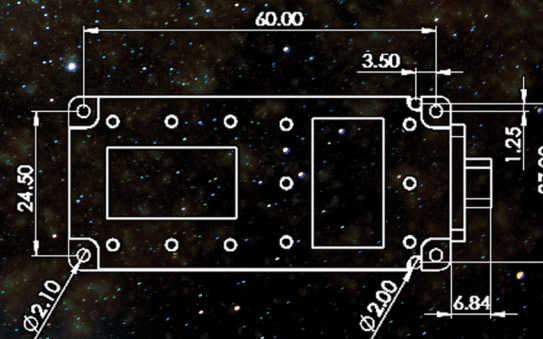
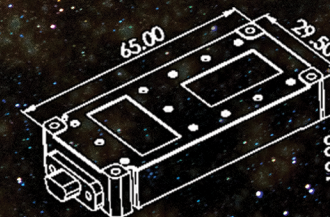
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## Features

- Digital
- Two Axes
- High Accuracy
- Wide Field of View
- Small Size & Low Mass
- Low Power
- Albedo Detection
- Electronic Shutter

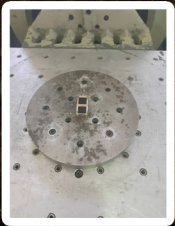
## Mechanical Interface



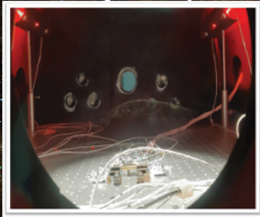
# Qualification

The tests conducted on the HSS Sun Sensor are listed below:

| Qualification Test | Standard                      |
|--------------------|-------------------------------|
| Mechanical         | ECSS-E10-03A<br>ECSS-STD-7000 |
| Thermal            | ECSS-E-10-03A                 |
| EMC/EMI            | MIL-STD-461F                  |
| Radiation (TID)    | MIL-STD-883G                  |



**Mechanical**



**Thermal**



**EMC/EMI**



**Radiation**

Based on several Functional & Environmental tests on HFP Digital Sun Sensor, this product is used in more than 10 missions.

# Technical Characteristics

| Parameter                | Value                              |
|--------------------------|------------------------------------|
| Functional Properties    |                                    |
| Accuracy ( $3\sigma$ )   | $0.5^\circ$                        |
| Filed-Of-View            | $\pm 60^\circ$                     |
| Update Rate              | Up to 10 Hz                        |
| Output                   | Sun Direction Unit Vector          |
| Data Interface           | CAN                                |
| Environmental Properties |                                    |
| Temperature              | $-25^\circ$ to $+65^\circ\text{C}$ |
| Vibration                | 15g RMS                            |
| Electrical               | MIL-STD-461F                       |
| Radiation                | 15kRad (component level)           |
| Electrical Properties    |                                    |
| Power Supply             | 5 Volt $\pm 5\%$                   |
| Current Consumption      | $< 40\text{ mA}$                   |
| Physical Properties      |                                    |
| Dimension                | $73 * 29.5 * 12\text{ mm}^3$       |
| Mass                     | 40 gr                              |
| Connector                | 9 Way Micro-D                      |

# Utility

The sun sensor is a device that determines the direction of the sun position vector within its own reference coordinate system. The information obtained from the sun's position is widely utilized in satellite Attitude Determination and Control Systems (ADCS).

A variety of sun sensors, differing in accuracy, power consumption, and physical dimensions, have been developed to meet the diverse requirements of space missions. Due to their functionality and reliability, sun sensors have become an indispensable component of satellite ADCS.

Hojjat Fanavar Pajouh Company has successfully designed and manufactured several types of sun sensors, among which the HSS-04 is a notable example. The HSS-04 is a digital, two-axis fine sun sensor that provides high-precision measurements. Considering its technical performance and physical characteristics, the HSS-04 represents a highly effective solution for ADCS applications.

