Earth Sensor for Satellite

Outline
The Earth sensor is a device for determining the attitude of a micro satellite at an altitude of about 500 km. 4 pieces of multi-pixel array of thermopile sensors detect Earth edge to calculate the roll angle and the pitch angle. Its compact design is suitable for Micro-Satellites.

Features
- Flight proven
- Lower cost using COTS parts.
- Can be used for both of sunlight and eclipse.
- No cooling system required
- Suitable for Earth oriented micro-satellites
- RoHS nonconformity
- Made in Japan
### SPECIFICATIONS

<table>
<thead>
<tr>
<th>Items</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detector</td>
<td>COTS based Thermopile Sensor</td>
</tr>
<tr>
<td>FOV</td>
<td>33 deg x 4 arrays</td>
</tr>
<tr>
<td>Accuracy</td>
<td>± 1.5°</td>
</tr>
<tr>
<td>Power voltage</td>
<td>-5 to +5 V</td>
</tr>
<tr>
<td>Power consumption</td>
<td>&lt; 1 W</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>-25 to +60 °C</td>
</tr>
<tr>
<td>Weight</td>
<td>&lt; 250 g</td>
</tr>
<tr>
<td>Dimensions</td>
<td>40 x 40 x 55 mm (flange and screw not included)</td>
</tr>
<tr>
<td>Telemetry / command interface</td>
<td>I2C</td>
</tr>
<tr>
<td>Lead time</td>
<td>About 6 months after receiving orders.</td>
</tr>
<tr>
<td>Flight heritage</td>
<td>SOCRATES</td>
</tr>
</tbody>
</table>

**Theory of measurement**

![Position of Horizon](image1)

![Horizon of Thermo-pile array](image2)

![Output of Thermo-pile array](image3)

* This product was developed with the support of JAXA (Japan Aerospace Exploration Agency)
* Above-mentioned specification is an example. The specifications will be customized to suit your request.

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**Caution**

- For safe and correct usage, please read the "Operation Manual" prior to the use of the products.
- Specifications and designs are subject to change without notice.
- Specifications and designs are based on the standard model. Please contact us regarding further customization to suit your project's needs.
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