Particle Detector for Spacecraft

Outline

A particle detector instrument observes electron, proton and He. The instrument contributes to investigations into the cause of troubles such as malfunctions of semiconductor devices and electrostatic charge. It also observes the worst environment of trapped particles in the radiation belt, solar flare particles, and auroral particles.

Features

The particle detector instrument consists of the low energy electron detector (ELS-A), the high energy electron detector (ELS-B), the low energy alpha proton detector (APS-A), and the middle energy alpha proton detector (APS-B). The detectors observe light particles (electron, proton, deuterion, tritium, helium 3, and helium 4). The instruments will be separately used in accordance with the intended use.

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Heritage:
- Greenhouse Gases Observing Satellite “IBUKI” (GOSAT)
- JASON2

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Outer Shape Drawing

* This product was developed with the support of JAXA (Japan Aerospace Exploration Agency)
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## Specifications

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<th>LPT1, LPT2</th>
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<tr>
<td>Observation particle</td>
<td>Electron, proton, deuteron, tritium, helium</td>
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| Observation energy range | Electron: 30keV to 20MeV  
                           | Proton: 400keV to 250MeV  
                           | Deuteron: 2 MeV/n to 26.6 MeV/n  
                           | Tritium: 2 MeV/n to 20.7 MeV/n  
                           | Helium 3: 3 MeV/n to 84.3 MeV/n  
                           | Helium 4: 0.75 MeV/n to 100 MeV/n |
| Sensor composition  | Silicon semiconductor detector (PIN type)  
                           | APS-A: 3 pieces  
                           | APS-B: 4 pieces  
                           | ELS-A: 4 pieces  
                           | ELS-B: 1 piece |
| Energy resolution   | APS-A, APS-B, ELS-A: less than 25keV  
                           | ELS-B: less than 10% |
| Observation frequency| More than 5 × 10⁴ event/sec |
| G-Factor            | APS-A: 0.003 cm²·sr  
                           | APS-B: 0.0085 cm²·sr  
                           | ELS-A: 0.0442 cm²·sr  
                           | ELS-B: 0.0597 cm²·sr |
| Field of vision     | APS-A: ±10°  
                           | APS-B: ±16.7°  
                           | ELS-A: ±21.8°  
                           | ELS-B: ±21.8° |

* The specifications will be tailored to suit your needs.

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**Caution**

- 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.
- This product may be subject to the application of the Foreign Exchange and Foreign Trade Act and other related laws and regulations in Japan. Customer agrees to comply with such regulations and acknowledges that it is their responsibility to obtain any required licenses to export, re-export, or import this product.
- We shall not be liable for any damages arising out of or in connection with the use of specifications herein, including liability for lost profit, business interruption, or any other damages whatsoever.
- The printed colors may appear difficult from the actual product.

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