CubeSat Structures

Flight heritage since 2012

www.isispace.nl
The ISIS CubeSat structure are developed as generic, modular satellite structures based upon the CubeSat standard. The design created by ISIS allows for multiple mounting configurations, giving CubeSat developers maximum flexibility in their design process. The stack of PCBs and other flight modules can be build up first in the secondary structure and integrated with the load carrying frames at the end of the process, ensuring accessibility of the flight avionics. The use of a load carrying frame and detachable shear panels allows for access to all parts of the spacecraft avionics, even after final integration by removing one or more of the shear panels.

### DESCRIPTION

- Highly modular design
- Detachable side panels for maximum accessibility
- Multiple PCB sizes supported
- Dual Kill-switch mechanism
- The interstack volume can be used to mount additional systems
- Scalable design to larger CubeSat form factors
- Compatible with most CubeSatShop products
- Fully compliant with the CubeSat standard

### PROPERTIES

<table>
<thead>
<tr>
<th></th>
<th>1- Unit Structure</th>
<th>2-Unit Structure</th>
<th>2-Unit LS Structure</th>
<th>3-Unit Structure</th>
<th>6-Unit Structure</th>
<th>8-Unit Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Structure Mass</td>
<td>100g</td>
<td>200g</td>
<td>164g</td>
<td>243g</td>
<td>900g</td>
<td>1333g</td>
</tr>
<tr>
<td>Primary + Secondary Mass</td>
<td>200g</td>
<td>390g</td>
<td>198g</td>
<td>304g</td>
<td>1100g</td>
<td>1871g</td>
</tr>
<tr>
<td>Outside Envelope (l x w x h)</td>
<td>100 x 100 x 113.5mm</td>
<td>100 x 100 x 227mm</td>
<td>100 x 100 x 227mm</td>
<td>100 x 100 x 340.5mm</td>
<td>100 x 226.3 x 340.5mm</td>
<td>226.3 x 226.3 x 227mm</td>
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### OPTIONS

<table>
<thead>
<tr>
<th>PCB form factors</th>
<th>PC/104</th>
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<th>PC/104</th>
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</thead>
<tbody>
<tr>
<td>94 x 94 mm PCBs</td>
<td>Custom design</td>
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<table>
<thead>
<tr>
<th>PCB stack orientations</th>
<th>Vertical orientation</th>
<th>Vertical orientation</th>
<th>Horizontal orientation</th>
<th>Vertical orientation</th>
<th>Vertical orientation</th>
<th>Vertical orientation</th>
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<tbody>
<tr>
<td>Horizontal orientation</td>
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</table>

- Special mount points
- Cut-outs
- Surface treatments
- Custom stack length

### FLIGHT HERITAGE

<table>
<thead>
<tr>
<th>Year</th>
<th>2012</th>
<th>2013</th>
<th>-</th>
<th>2013</th>
<th>2015</th>
<th>-</th>
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</thead>
</table>
QUALIFICATION TESTING

Test | QT
--- | ---
Functional | ✓
Vibration | ✓
Mechanical Shock | ✓
Thermal Cycling | ✓
Thermal Vacuum | ✓

*QT is performed on the design/qualification model

PRODUCT CONTENTS AND PACKAGING

- Boxed in rugged storage case
- Contents:
  - Primary structure parts (side frames, ribs)
  - Secondary structure parts (shear panels, PCB mounting elements)
  - Kill-switch
  - Dummy PCBs
  - Fasteners
  - User manual, installation guide and assembly tools

CUSTOM SOLUTIONS

ISIS’ CubeSat structures are available in a variety of sizes ranging from 1U up to 16U. However, as every mission is unique, if one of our standard structures does not fit your mission requirement, ISIS can develop custom solutions that meet any project specification.