Satellite Integrated Electronics

Abstract:

This command describes the appearance features, technical specifications, interface definitions and communication protocols of Satellite Integrated Electronics.

Key Words: Satellite, Integrated Electronics, Specification, Interface

1. Appearance

The appearance of Satellite Integrated Electronics is shown as figure1.

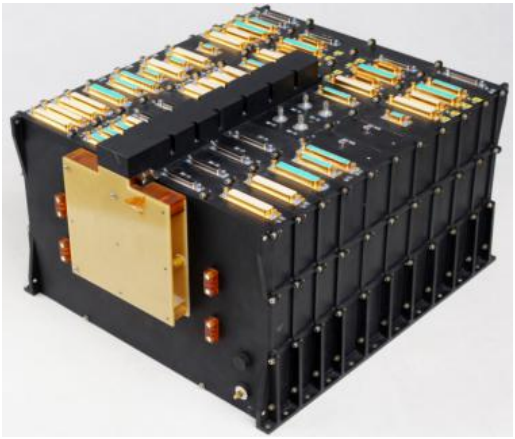

Fig.1 Satellite Integrated Electronics

2. Specifications

Satellite Integrated Electronic System adopts the advanced design concept of satellite integrated electronic system to realize unified management of onboard electronic equipments in the form of modularization with Central Management Unit (CMU) as its core to form a centralized distribution system.

It provides standard electric interface, and conducts integration and optimization design for instruments of various subsystems that require power distribution and tele- metry and telecommand services. Its functions include: 1553B bus communication, power supply and distribution, instruction driving, telemetry acquisition, pyrotechnic device management, power conditioning unit (PCU) interface management, lithium- ion equalization processor interface management, data communication of payload, and system fault detection, isolation, recovery of equipment. It improves the integra- ted management capability of electronic system of satellite platform in all aspects of attitude and orbit control, power, thermal control, telemetry, telecommand, payload, etc, to achieve expandability and adaptability.

Fig.1 Satellite Integrated Electronics Interface

Table1 Specifications

3. Mechanical Interfaces

3.1 ISU-A

Item	Parameter	Remark
Weight	19	kg
Dimensions	338×322×240	mm
Power Consumption	≤25	W
Modular Type	DC/DC, pyrotechnic device management, power distribution, main control, telemetry, instruction, thermal control	
Bus Type	1553B	

3.2 ISU-B

Item	Parameter	Remark
Weight	14	kg
Dimensions	338×252×240	mm
Power Consumption	≤18	W
Modular Type	DC/DC, antenna control, power distribution, main control, telemetry, instruction, thermal control	
Bus Type	14	
Power Consumption	14	number configurable

3.3 ISU-D

Item	Parameter	Remark
Weight	19	kg
Dimensions	338×322×240	mm
Power Consumption	≤25	W
Modular Type	DC/DC, pyrotechnic device management, power distribution, main control, telemetry, instruction, thermal control	
Bus Type	1553B	

4. Power Requirements

+28V DC power supply

Table3 Power Requirements

Item	Parameter	Remark
Power supply	+28 V	

Inrush current	2A/5ms	
Steady power consumption	<7.5W	
Peak power consumption	<10W	

5. Fault Identification

If the following phenomena happen in the process of installation testing, it indicates that Integrated Electronics has faults. Please contact supplier to solve the problems:

- There are obvious damage signs on the appearance, including serious scratch, knock mark, component loss, etc.
- There are damages to electrical interface. The impedance is less than 1KΩ when measuring power supply and ground return lines with multimeter.
- The static operating current is greater than 1A after power-on under normal temperature and pressure.
- Data bus can't receive (send) data or receive (send) error data.

6. Maintenance

Dedicated person should be designated for routine maintenance of Integrated Electronics.

- The input power supply of Integrated Electronics is +28VDC. No one shall be allowed to change that.
- The type, specification, and parameter of components in circuits shall not be changed in the process of usage or maintenance. If faults happen, please contact supplier.
- Installations must be firm without breaking off.
- Transportation shall comply with waterway, land route transportation and loading requirements, avoiding collision, water, and corrosion.