



*Regional Leaders
Summit*

TIM – Telematics International Mission

Status Meeting Quebec

Agenda

- Welcome
- Status Summary
- Common Mission Statement & Schedule
- Common Needs and Problems
- Action Plan
- Next Meeting

Common Mission Statement & Schedule

Proposed Applications

- Cloud Top Height Measurements,
 - Lightning Monitoring,
 - Fires and Floods
 - Maritime Applications (Illegal Fishing, Coast Line Monitoring)
- Heterogeneous Network of Nano-Satellites for Environmental Warning

Common Needs and Problems

Major Points of Discussion

- UNISEC Standard
- Payloads
 - Optical Camera
 - Supplementary Payloads?
- Others
 - Communication/Inter-Satellite Links
 - Formation/Propulsion System
 - Subsystems

Common Needs and Problems

Major Points of Discussion: UNISEC Cubesat Electrical Interface

The UNISEC Bus Standard provides a distributed electrical power concept

<http://unisec-europe.eu/standards/bus/>

External Debug Interface

- easy stand-alone operation of subsystem debug communication (UART via USB bridge)
- microcontroller programming and in-system-debugging (JTAG, SBW, SWD)
- supply by USB power (5V, 3.3V, unregulated bus)



Power Control Circuit

- controlled by OBC via redundant I²C bus
- power switch
- power monitoring (voltage, current)
- power protection optimized for specific subsystem (over-voltage, under-voltage, over-current, i.e. latchup)

Satellite Bus Connector

- compact and robust backplane
- redundant power, high-speed and low-speed digital buses
- dedicated signals for reset, time sync, deployment logic
- internal debug interface (communication, programming, and debugging after integration and in-orbit)

Interface Control Circuit

- selective bus isolation
- prevents current leakage for partial power down
- allows bus routing, redundancy selection controlled by OBC

Common Needs and Problems

Major Points of Discussion: UNISEC Cubesat Electrical Interface

- Available Components
 - Electrical Power System (EPS)
 - UHF Communication
 - On-Board Computer
- In Development
 - Attitude Determination and Control System
 - S-Band Communication
 - Computing Board
- Your Components?
 - Support / Development Kit available, ordering through Prof. Schilling

Common Needs and Problems

Major Points of Discussion: Payloads

- Optical Camera
 - Current Product
 - » Gecko Imager, SCS Space
 - » Price Reduction through Bulk Ordering?
 - Other Options?
- Supplementary Payloads
 - Infrared Spectrometers / Imagers
 - Hyperspectral Imagers
 - ...

Common Needs and Problems

Major Points of Discussion: Others

- Communication / Inter Satellite Links
 - Experience of partners
 - Available components

- Formation / Propulsion
 - Experience of partners
 - Available components