HASP Payload Specification and Integration Plan

Payload Title: Supercapacitor Power System

Payload Class: [✓ Small] Large (circle one)

Payload ID: TBD

Institution: University of Louisiana at Lafayette

Contact Name: Paul Darby

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Contact E-mail: pauldarby@aol.com

Submit Date: 6-1-07

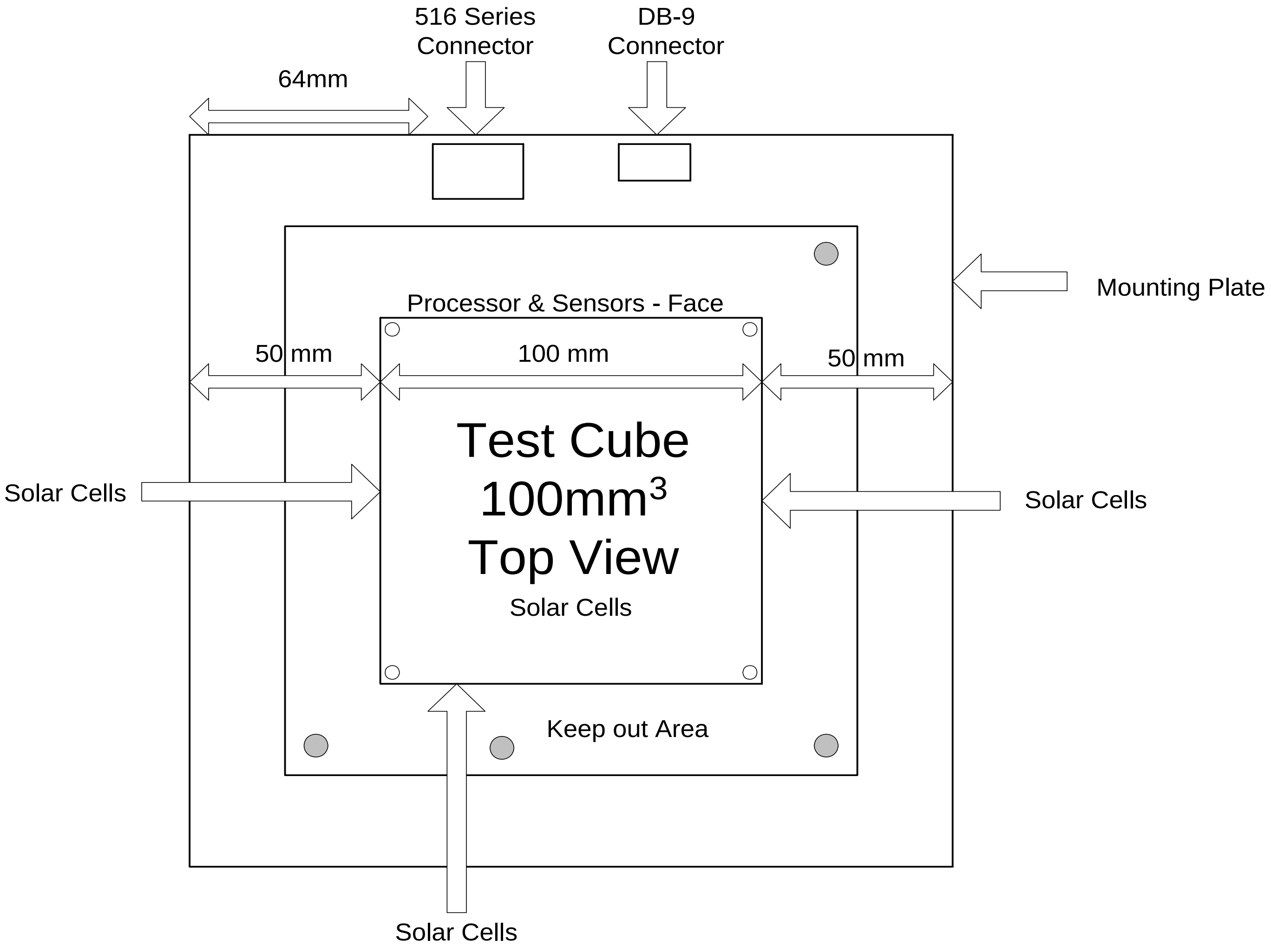
I. Mechanical Specifications:

A. Measured weight of the payload (not including payload plate)

220 grams.

B. Provide a mechanical drawing detailing the major components of your payload and specifically how your payload is attached to the payload mounting plate

See included drawing Revision: UL-2007-MAY-31-M001
HASP Mechanical Drawing, UL Lafayette,
Revision: UL-2007-MAY-31-M001
Paul Darby, P.E.



If you are flying anything that is potentially hazardous to HASP or the ground crew before or after launch, please supply all documentation provided with the hazardous components (i.e. pressurized containers, radioactive material, projectiles, rockets…)

Not applicable

C. Other relevant mechanical information

None

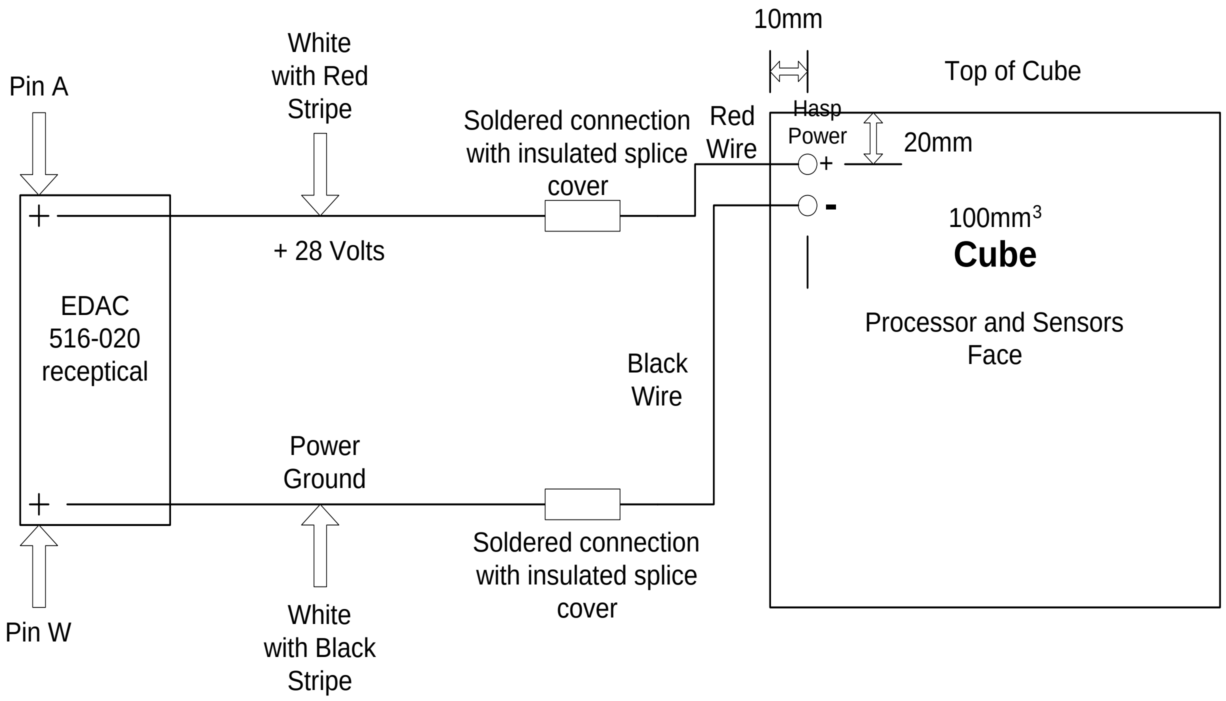
II. Power Specifications:

A. Measured current draw at 28 VDC

0.016 Amps.

B. If HASP is providing power to your payload, provide a power system wiring diagram starting from pins on the student payload interface plate EDAC 516 connector through your power conversion to the voltages required by your subsystems.

See included drawing Revision: UL-2007-MAY-31-E001
HASP Electrical Power Drawing, UL Lafayette,
Revision: UL-2007-MAY-31-E001
Paul Darby, P.E.



C. Other relevant power information

None

III. Downlink Telemetry Specifications:

A. Serial data downlink format: [✓ Stream] Packetized (circle one)

B. Approximate serial downlink rate (in bits per second): 1200 bits / sec

C. Specify your serial data record including record length and information contained in each record byte.

A typical payload data record includes a short descriptive header, and 15 samples of three pieces of information. These are the low and high voltage levels of the resistor in the respective charge/discharge circuit in order to verify the current drawn, as well as the voltage on the output bus of the voltage regulator to verify it maintains fairly stable 3.3 volts

Thus, it looks something like

100mA Discharge
2.36 2.78 3.32
2.42 2.67 3.32
2.36 2.62 3.31
... continuing for a total of fifteen rows of decimals.

Each row contains fifteen ascii characters (9 numbers, 3 decimals, and 3 tabs, assume trailing tab) There are fifteen rows, with each ascii character requiring one byte.

So 15 rows x 15 bytes = 225 bytes per record, plus header data, which roughly comes to 250 bytes / record. We expect to send one of these records every 25-30 seconds.

Therefore: We stipulate

Record Length: 250 bytes
Every 25 seconds (max)

However, we did not adhere to any specific format or synchronization of the data, as none were required by the Student Payload Interface Manual, (ref. Section VII – Student Payload Serial Communication).

D. Number of analog channels being used: **0**

E. If analog channels are being used, what are they being used for?

F. Number of discrete lines being used: **0**

G. If discrete lines are being used what are they being used for?

H. Are there any on-board transmitters? If so, list the frequencies being used and the transmitted power. **No.**

I. Other relevant downlink telemetry information.

None

IV. Uplink Commanding Specifications:

A. Command uplink capability required: Yes [✓ No] (circle one)

V. Integration and Logistics

A. Date and Time of your arrival for integration:

July 23 & 24 Primary, July 25 & 26 Secondary

B. Approximate amount of time required for integration:

4 hours (max worse case)

C. Name of the integration team leader:

Paul Darby (may not be physically present at integration)

D. Email address of the integration team leader:

Pauldarby@aol.com

E. List **ALL** integration participants (first and last names) who will be present for integration with their email addresses:

Mr. Blaise Bernard (will be present at integration)

blaise.bernard@gmail.com

F. Define a successful integration of your payload:

Successfully collected data file with data reflecting supercap charge and discharge measurements and related pressure, temp, measurements in same file.

G. List all expected integration steps:

Note: (Very Important : Section G, here, lists integration steps at Palestine Tx; however, pre-flight, flight steps are listed under Section H)

Step 1: Physically mount attachment platform to the Payload Position.

Step 2: Physically connect the DB-9 mounting plate connector (female) to the HASP male (DB9)

Step 3: Physically connect the EDAC 516 female mounting plate connector (female) to the HASP male EDAC 516 connector

Step 4: Power on + 28 Volts DC prior to begin integration test

Step 5: Test integration data production on HASP computer.

Step 6: Power off + 28 Volts DC at end of integration test

H. List all checks that will determine a successful integration:

Note: (Very Important : These steps are to be performed prior to flight of the balloon)

Step 1: Verify all integration steps listed in Section G above have been completed successfully.

Step 4: Power on + 28 Volts DC prior to beginning of balloon flight

Step 5: Verify data being transmitted to data file

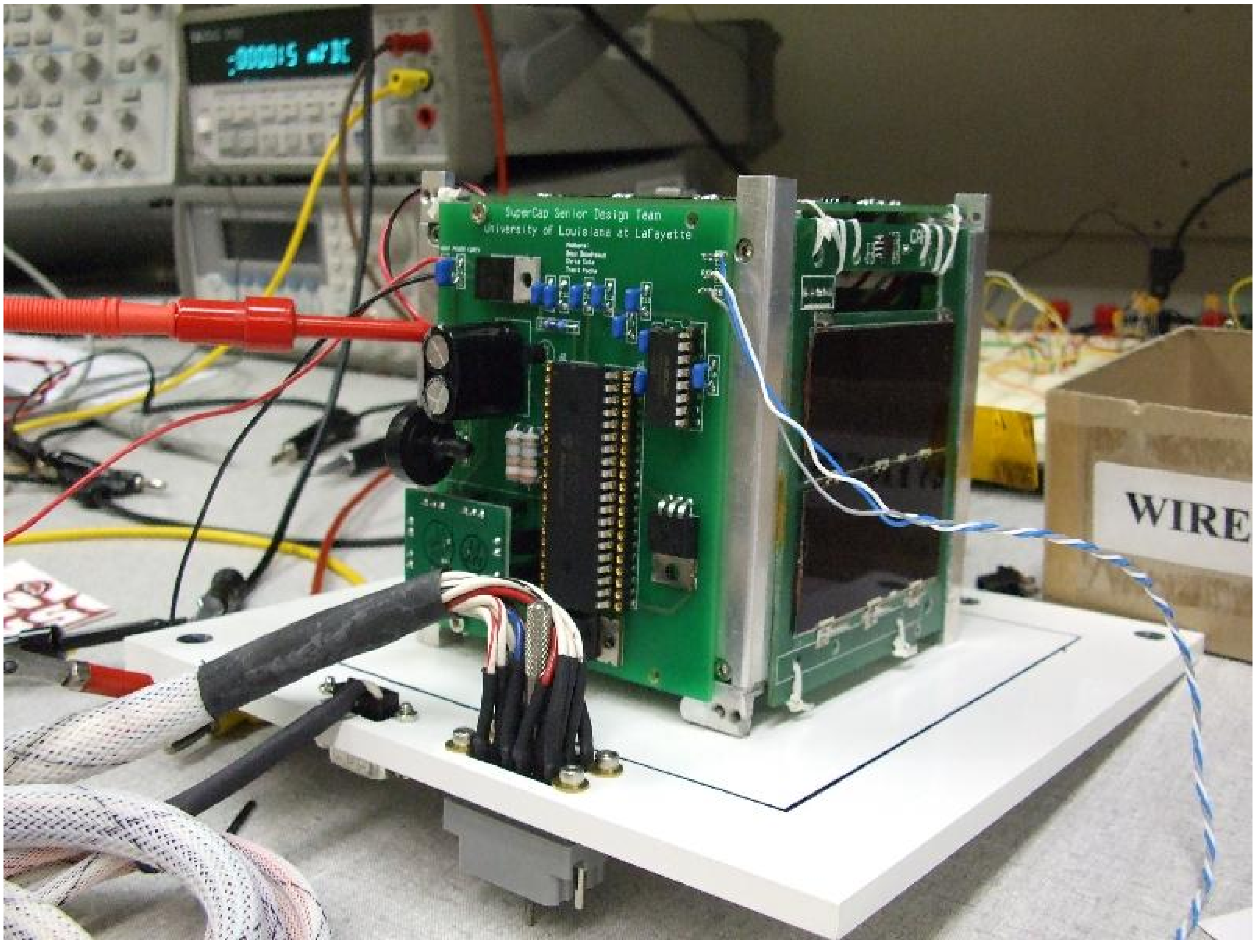
Step 6: Power to be maintained on for entire duration of flight

I. List any additional LSU personnel support needed for a successful integration other than directly related to the HASP integration (i.e. lifting, moving equipment, hotel information/arrangements, any special delivery needs…):

None.

J. List any LSU supplied equipment that may be needed for a successful integration:

None.


SuperCap Senior Design Team
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WIRE