



ESEIAAT



Escola Superior d'Enginyeries Industrials,  
Aeroespacial i Audiovisual de Terrassa

UNIVERSITAT POLITÈCNICA DE CATALUNYA

# Cubesat Constellation Astrea

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## Report

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# **1 Example**

Example

## **1.1 Example**

Example

### **1.1.1 Example**

Example

#### **1.1.1.1 Example**

Example

## 2 Satellite design

### 2.1 Structure and mechanics

EMPTY

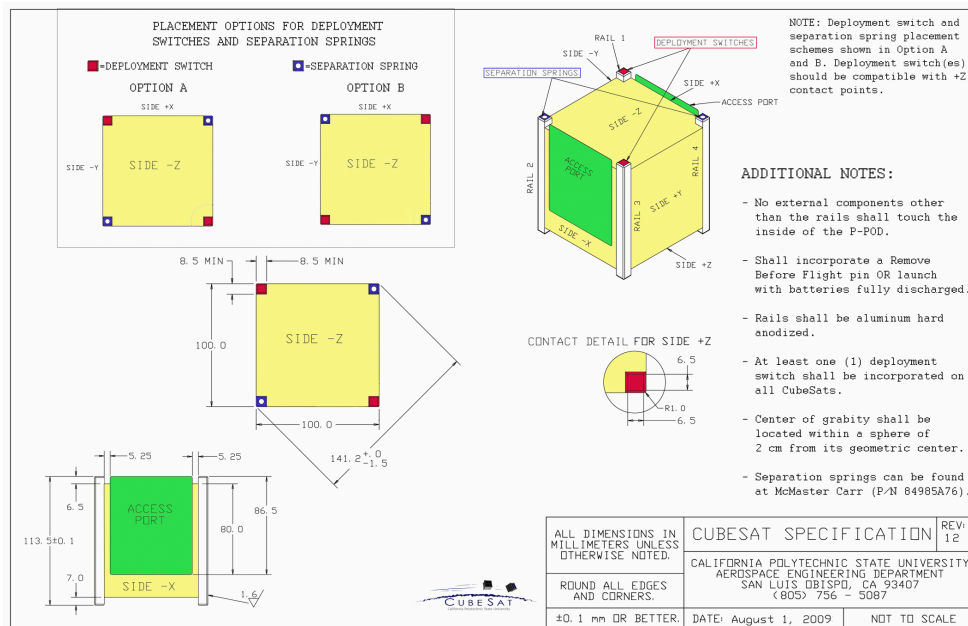


Figure 2.1: Dimensions of a 1U CubeSat [?]

#### 2.1.1 Solar arrays

EMPTY

#### 2.1.2 Batteries

EMPTY

#### 2.1.3 Power management

EMPTY

#### 2.1.4 Study of the commercial available options

EMPTY

Brand and model	Features and description	Money (€)
Solar Panels		

## 2.2 Electrical Power System

Fabricant 1	Descripcio dEL BICHOOOOOO	2000000
Chuscas 1	Descripcio del BICHOOOO	20000
Truñaas 1	Descripcio del BICHOOOO	20000
Cuescas 1	Descripcio del BICHOOOO	20000

Table 2.1: Options studied

Of all the options in 2.4, we have chosen the following options.

## 2.2 Electrical Power System

The Electric Power System of the satellite must provide and manage the energy generated efficiently in order to have all the systems operating under normal conditions. The Electrical Power System of a Cubesat is, probably, the most fundamental requirement of the satellite payload, since a failure of it results in a mission failure. High level functions of the EPS are to control and distribute power to the Cubesat, to supply a continuous source of electrical power for the duration of the mission or the service provided by Astrea, to protect the satellite against bus failiures and to monitor and communicate the system status to the on-board computer. The role of the EPS is very diverse and the following subsystems have to be analyzed in detail.

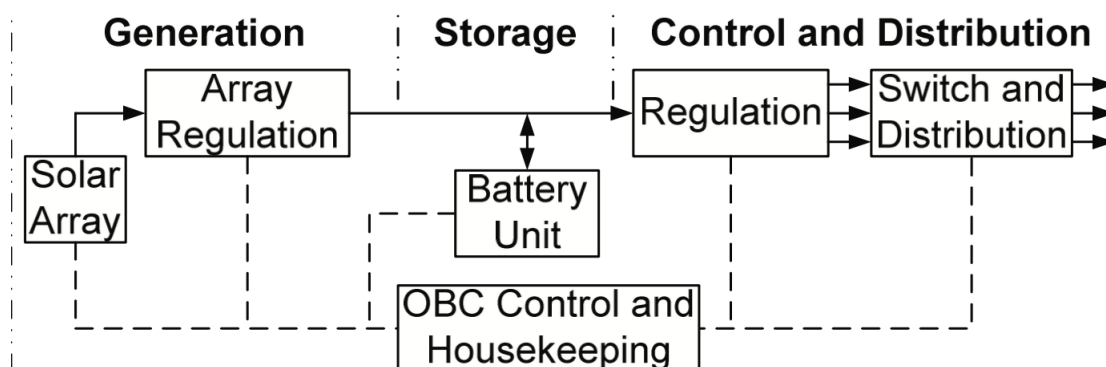


Figure 2.2: Basic schematics of the EPS [?]

### 2.2.1 Solar arrays

The primary source of electrical power has to be photovoltaic cells, given the size of the CubeSat.



## 2.3 Communication module

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### 2.2.2 Batteries

### 2.2.3 Power management

### 2.2.4 Study of the commercial available options

Several commercial options have to be studied. The table provided below organizes some information about the different options purchased.

Brand and model	Features and description	Money (€)
<b>Solar Panels</b>		
Fabricant 1	Descripcio dEL BICHOOOOOO	2000000
Chuscas 1	Descripcio del BICHOOOO	20000
Truñaas 1	Descripcio del BICHOOOO	20000
Cuescas 1	Descripcio del BICHOOOO	20000

Table 2.2: Options studied

Of all the options in 2.4, we have chosen the following options.

## 2.3 Communication module

100kbps:

1mbps:

¿solo 9600bps?:

Links interesantes universidades:

## 2.4 Payload

EMPTY

### 2.4.1 Solar arrays

EMPTY

### 2.4.2 Batteries

EMPTY

### 2.4.3 Power management

EMPTY

## 2.5 Attitude and control systems

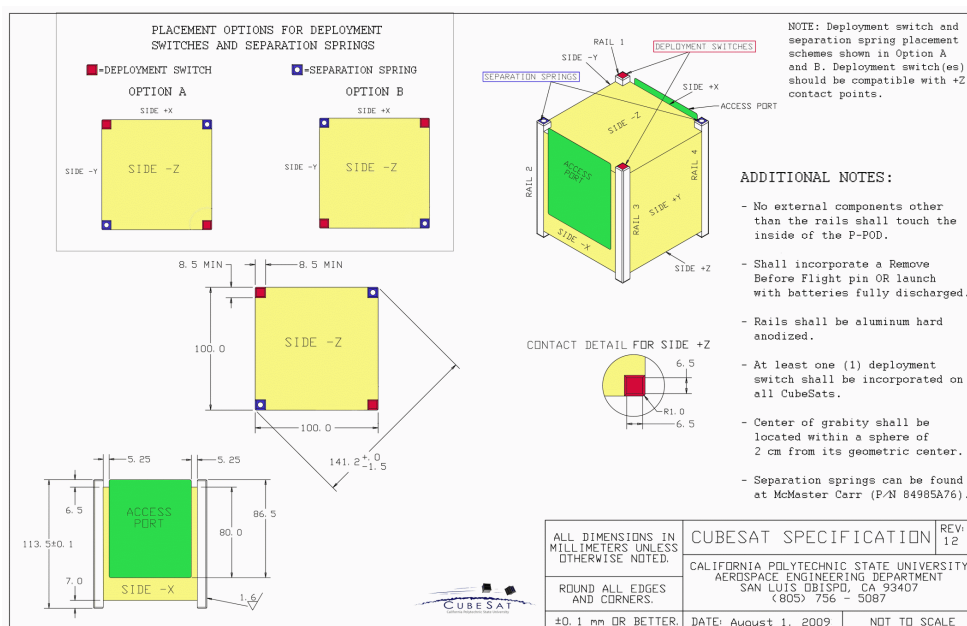


Figure 2.3: Dimensions of a 1U CubeSat [?]

### 2.4.4 Study of the commercial available options

EMPTY

Brand and model	Features and description	Money (€)
<b>Solar Panels</b>		
Fabricant 1	Descripcio dEL BICHOOOOOO	2000000
Chuscas 1	Descripcio del BICHOOOO	20000
Truñaas 1	Descripcio del BICHOOOO	20000
Cuescas 1	Descripcio del BICHOOOO	20000

Table 2.3: Options studied

Of all the options in 2.4, we have chosen the following options.

## 2.5 Attitude and control systems

EMPTY

## 2.5 Attitude and control systems

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### 2.5.2 Batteries

EMPTY

### 2.5.3 Power management

EMPTY

### 2.5.4 Study of the commercial available options

EMPTY

Brand and model	Features and description	Money (€)
<b>Solar Panels</b>		
Fabricant 1	Descripcio dEL BICHOOOOOOO	2000000
Chuscas 1	Descripcio del BICHOOOO	20000
Truñaas 1	Descripcio del BICHOOOO	20000
Cuescas 1	Descripcio del BICHOOOO	20000

Table 2.4: Options studied

Of all the options in 2.4, we have chosen the following options.