# EPS SUBSYSTEM

## Introduction

Electrical Power Subsystem (EPS) module provides, stores, distributes and controls CubeSat’s electrical power. In fact it absorbs energy from photo-voltaic cells and supplies it to the system under the appropriate voltage levels. A battery storage system is also used in order to feed the load when the energy produced by the PV cell is not sufficient and to store the excessive energy whenever it is possible. For the selection of the appropriate configuration, also to evaluate the environmental conditions as well as the energy required by the satellite’s subsystems, such as the Communication ,OBC ,and the ADCS subsystems.

Four high efficiency (20~30%) PV cells connected individually to a high and to a battery array through high efficiency voltage step-up boost converters

Implementation of the P&O MPPT algorithm through the EPS microcontroller

Battery Array: 3 Li-Po batteries (3.7V, 4Ah) and its voltage varies 6V ~ 8.4V

MOSFET switches for power distribution, in order to cut off the consumption if necessary

The mass of the developed EPS is 318g (PV cells: 22g, batteries: 46g, boards: 250g).