

Universal 1U Cubesat by Juliano85 - Thingiverse

Introduction

This CubeSat is designed to be compatible with the 1U CubeSat standard developed by the California Polytechnic State University CubeSat Program. It is an educational non-spaceflight qualified model used for developing low cost CubeSat projects which can also be used for HAB (High Altitude Balloon) projects, Sounding Rocket projects or any other STEM related projects. This allows students, makers, space enthusiasts and CubeSat engineers to easily integrate common open-source platforms such as Raspberry Pi's or Arduino Uno's depending on application. It also has PC/104 compatibility.

Configuration Options

The Universal adaptor plate can be used to configure the CubeSat depending on platform chosen. All frame screws are standard M3x10mm. The plate is mounted on either the bottom or top frame with the four mounting holes provided (see below) and can be stacked accordingly depending on usage and application. Always face the adaptor open end towards the Raspberry Pi Camera Module (if installed) to prevent space clashes.

Raspberry Pi Configuration

The Raspberry Pi configuration can include a Raspberry Pi Camera Module v2 mount and requires threaded inserts and M2 screws. To install a Raspberry Pi 2 or 3, use the following mounting holes shown below. These holes suit standard M2.5 mounting holes for Raspberry Pi's. If you have modified your RPi to M3 then these holes can also be drilled out / modified to suit. Please note RPi M2.5 Standoffs and screws will be required.

Arduino Uno Configuration

The Arduino Uno Configuration uses standard side frames. Arduino Uno Clones are also compatible as the mounting relies on PCB holes, not physical dimensions of the board. Arduino Uno Shields can also be stacked and standoff height can be modified to suit the application or project. The mounting holes for an Arduino Uno are M3 standard.

PC/104 Configuration

PC/104 Compatibility has been designed following standard hole dimensions. Due to varying board sizes of PC/104 not all boards are compatible. Please check clearances during design. Freetronics ArduSat boards are compatible due to the edge clearances of the board (see below).

External Panels

External panels can be mounted with M3x10mm Screws and Nuts. Locations for these are available on all sides of the CubeSat and can be used for following applications; - PCB Boards - Solar Panel Arrays - Sensors Mounted Externally - Custom Camera mounts - Custom GPS Mounts - Antenna Deployment Mechanisms - And many more! Refer to size guide below, all dimensions are in mm (millimetres) unless otherwise stated. - Tolerances of ± 0.5 mm should be accounted for when fabricating panels - Hole sizes can be adjusted to suit application.

Assembly Guide