

# DATASHEET

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Structure 3U

1 Change log .....3

2 Overview.....4

3 Highlighted features .....4

4 Elements.....5

5 Mechanical drawing.....6

6 EnduroSat's Solar Panel compatibility..... 10

7 Materials..... 11

8 Included in the Shipment..... 11

9 Handling and storage..... 11

# STRUCTURE 3U

## DATASHEET

This user manual details the applications, features and operation of EnduroSat's **Structure 3U** product. **Structure 3U** is an acronym for **Structure 3 Unit**

Please read carefully the manual before unpacking the elements to ensure safe and proper use.



Figure 1 – EnduroSat Structure 3U

## 1 CHANGE LOG

Date	Version	Note
10/07/2018	Rev 1	Initial Document
24/10/2018	Rev 1.1	Tolerances updated
16/11/2018	Rev 1.2	Technical writing enhancements

### 2 OVERVIEW

EnduroSat's **Structures** have a minimalistic design and are easy to assemble. They also provide a physically safe environment for the customer's payload and subsystems during all phases of the mission (e.g. launch phase). These qualities ensure stable operation of the CubeSat.

Our **Structure** products comply with the CubeSat standard and are compatible with a wide range of CubeSat subsystem producers. They also come with kill switches and 2 separation springs already integrated.

### 3 HIGHLIGHTED FEATURES

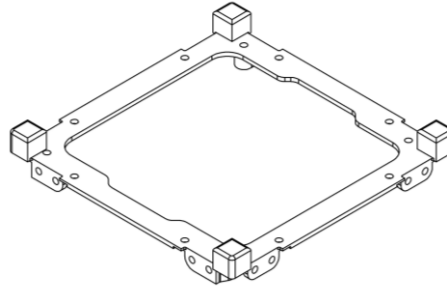
- Dimensions 3U: 100x100x340.5 mm
- Material: Aluminum 6061 or 6082
- Modular design
- One/two kill switches
- Two separation springs (optional)
- Mid-support bars
- Customizable design
- Custom nuts
- Weight 3U\* < 285 g

\*including bolts

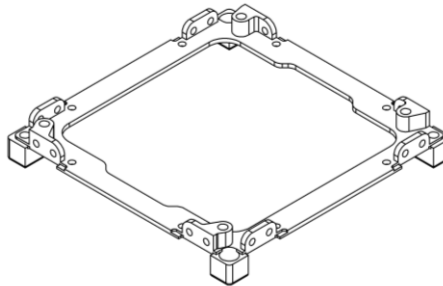
## 4 ELEMENTS

EnduroSat's **Structure** products are designed to be modular and are made up of 3 types of elements (top, bottom, and legs). This design approach allows the top and bottom elements to be used for different form factors. For instance, a **1U Structure** can be converted to a **3U Structure** by changing only the side elements.

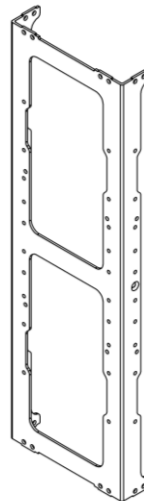
1 x Top Element  
(Z+)



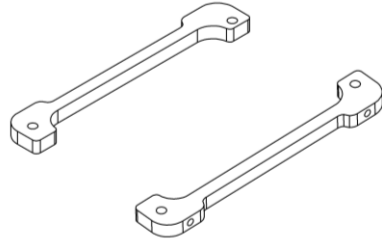
1 x Bottom Element  
(Z-)



2 x Leg 3U Element



2 x Support Bars



## 5 MECHANICAL DRAWING

The following drawings show main dimension of **Structure 3U**. All dimensions are in mm.

A STEP file can be provided upon request.

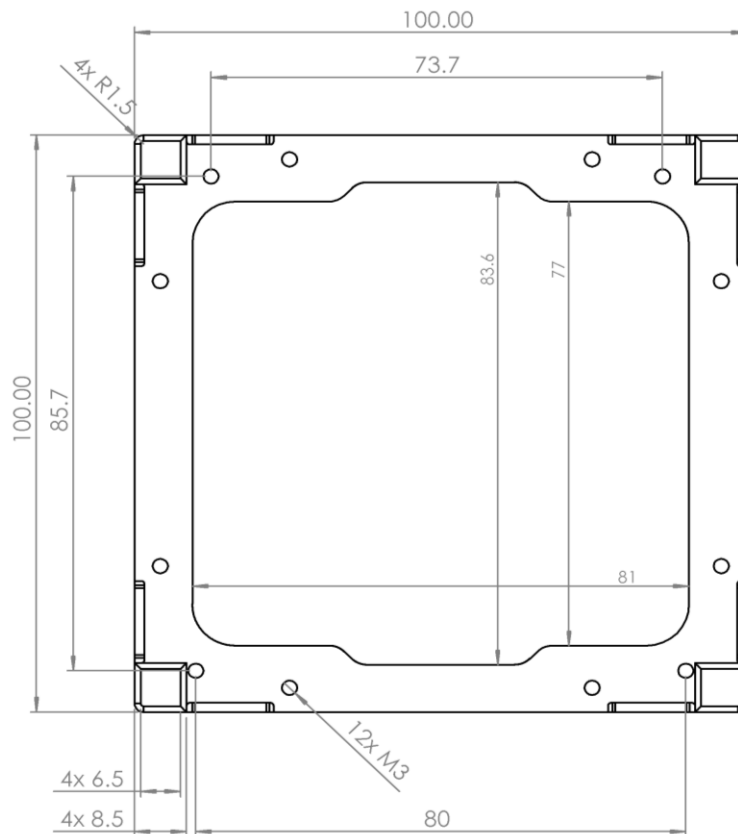


Figure 2: Structure 3U – Top View (Z+)

# STRUCTURE 3U – DATASHEET

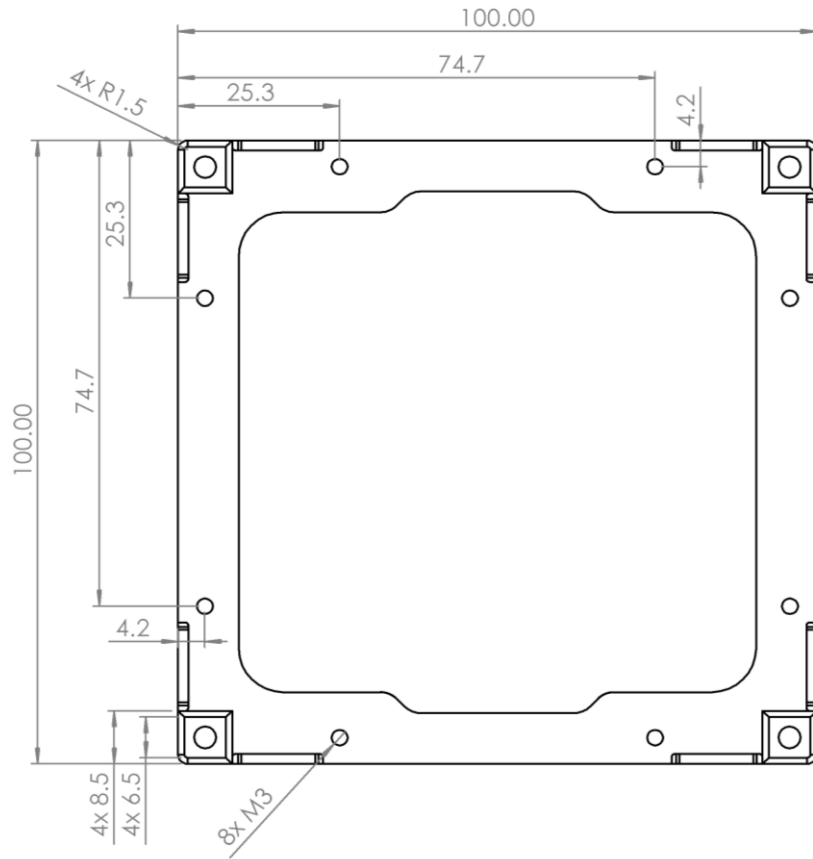


Figure 3: Structure 3U - Bottom View (Z-)

# STRUCTURE 3U – DATASHEET

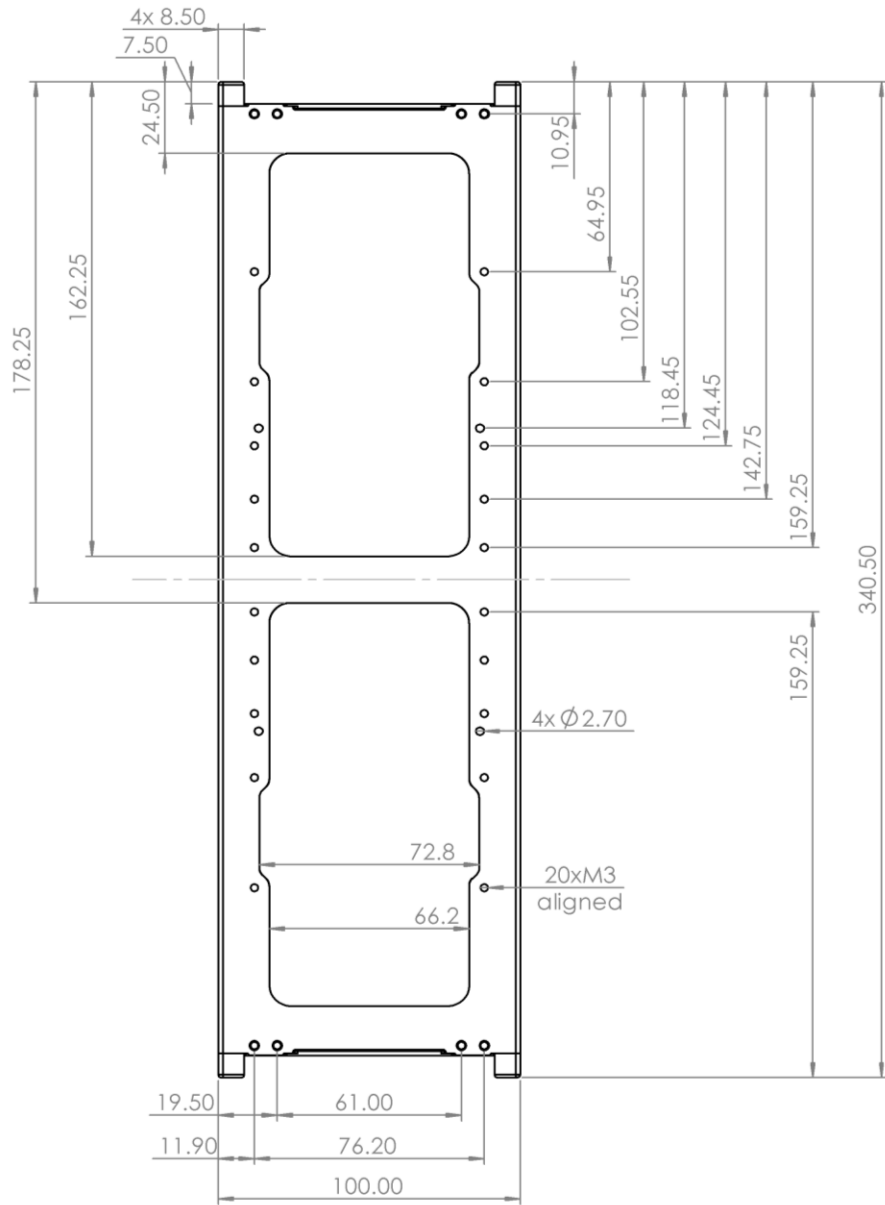


Figure 4: Structure 3U - Side 1 View



## STRUCTURE 3U – DATASHEET

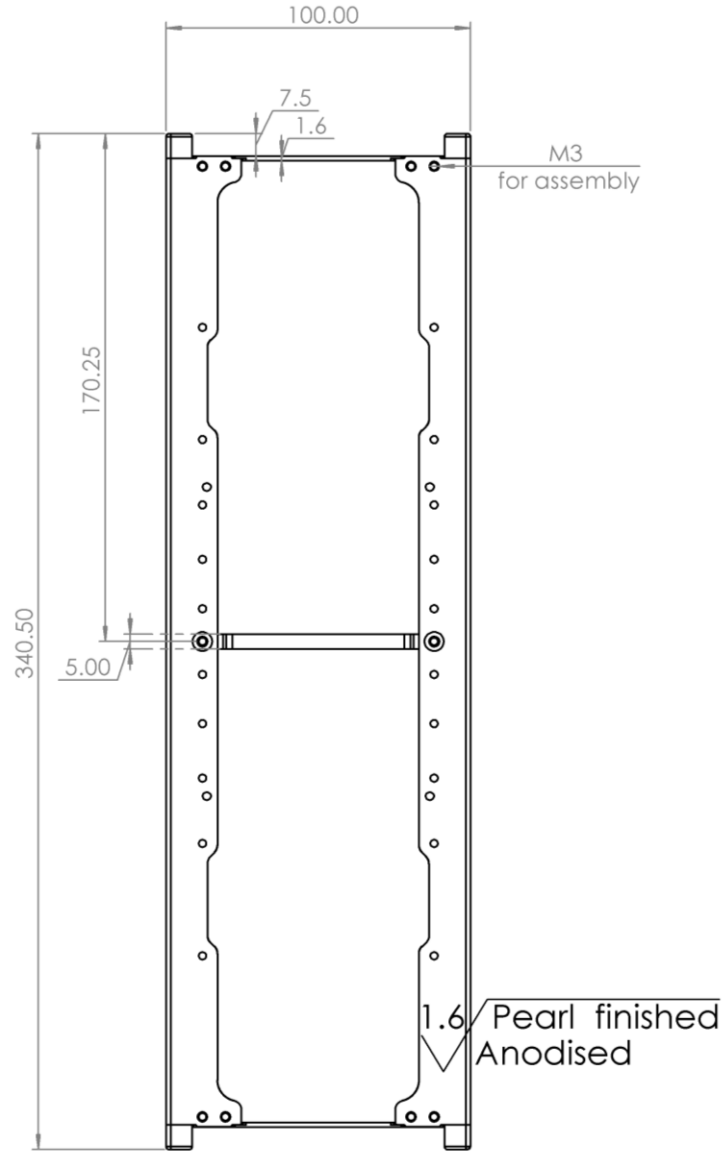
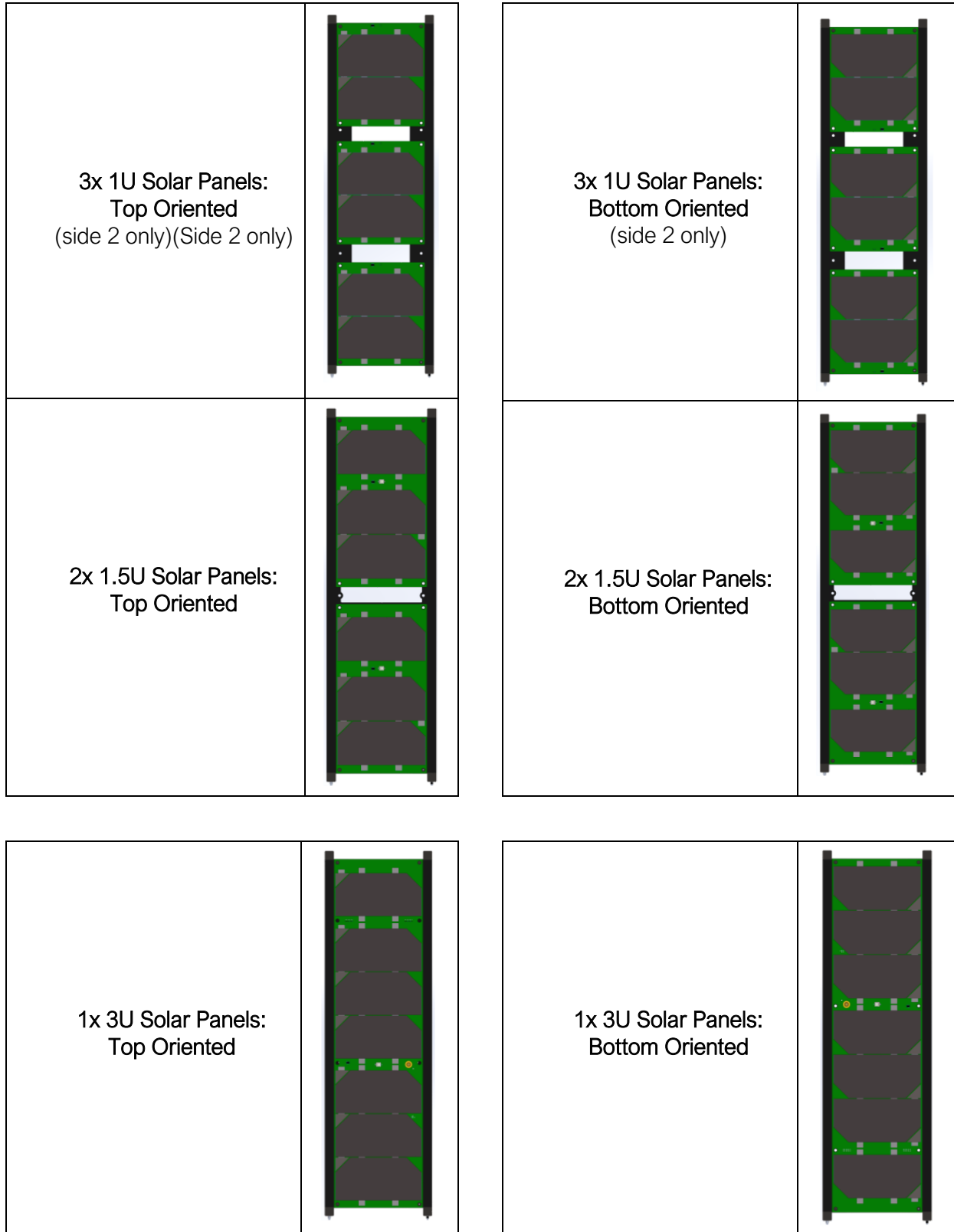


Figure 5: Structure 3U - Side 2 View

The dimensional tolerances for an assembled **Structure 3U** comply with the CubeSat Design Specification ( $\pm 0.1$ mm in X/Y axis, and  $\pm 0.3$  in Z axis).

6 ENDUROSAT'S SOLAR PANEL COMPATIBILITY



## 7 MATERIALS

All the elements of EnduroSat's **Structures** are made of Aluminum 6061-T651 or Aluminum 6082-T6, pearl finished and hard anodized (25-30  $\mu\text{m}$ ).

## 8 INCLUDED IN THE SHIPMENT

EnduroSat provides along with the **Structure**:

- Torx - DIN965/ISO 7046-1 -A2- M3 – Length: 4 mm
- Torx - DIN965/ISO 7046-1 -A2- M3 – Length: 5 mm
- Torx - DIN965/ISO 7046-1 -A2- M3 – Length: 8 mm

Recommended torque for mounting solar panels onto the structure is 0.8 Nm

## 9 HANDLING AND STORAGE

Particular attention shall be paid to the avoidance of damage to the elements of the **Structure** during handling, storage and preservation. The handling of the **Structure** should be performed in compliance with the following instructions:

- Handle using PVC, latex, cotton (lint free) or nylon gloves.
- The environment where structure module will be handled shall meet the requirements for a class environment 100,000, free of contaminants such as dust, oil, grease, fumes and smoke from any source.
- Store in such a manner as to preclude stress and prevent damage.
- To prevent deterioration, the **Structure** must be stored in a controlled environment (i.e. the temperature and humidity levels shall be maintained in the proper ranges):
  - Ideal storage temperature range: 15°C to 27°C
  - Ideal storage humidity range: 30% to 60% relative humidity (RH)