DATASHEET

Structure 6U

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This user manual details the applications, features and operation of EnduroSat's **Structure 6U** product. **Structure 6U** is an acronym for **Structure 6 Unit**.

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

Figure 1 – EnduroSat's Structure 6U

1 CHANGE LOG

Date	Version	Note
18/10/2018	Rev 1	Initial Document
16/11/2018	Rev 1.1	Technical writing enhancements
19/04/2019	Rev 1.2	Drawing changes, added photos
19/06/2019	Rev 1.3	Technical modification

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.

EnduroSat's Structure 6U comes with kill switches, fasteners and ring elements. The ring elements are additional aluminum elements which are added inside the structure to increase the mechanical strength.

3 HIGHLIGHTED FEATURES

- Dimensions 6U: 100 x 226.3 x 366 mm
- Material: Aluminum 6082
- Four kill switches option
- Three roller switches option
- Customizable design
- Weight 6U*: 908 g

* including bolts and 6 mounted rings

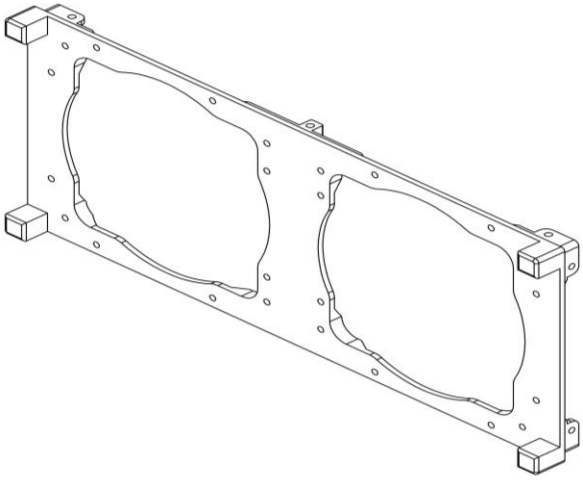
4 ELEMENTS

EnduroSat's Structure 6U is made up of 4 main element types (Bottom, Top, Side, and Ring).

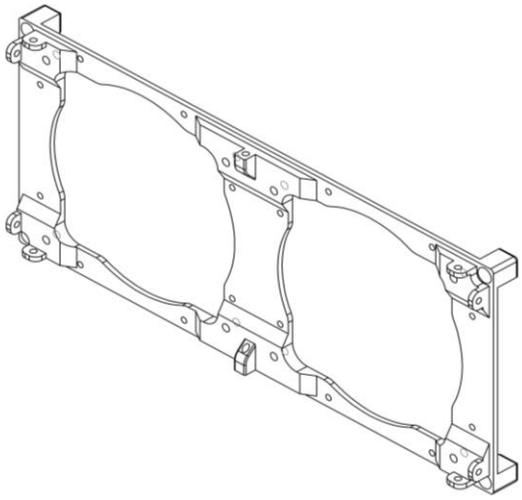
The Ring Elements are used to add rigidity to the structure where required. Their number and position depends on the internal configuration of the satellite's subsystems and payload. Ring Elements can be mounted on any M3 countersink hole along the Z or X axis according to the CubeSat Design Specification. This allows the subsystems to be stacked as required.

The four holes of the Ring Element can be M3 threaded upon request.

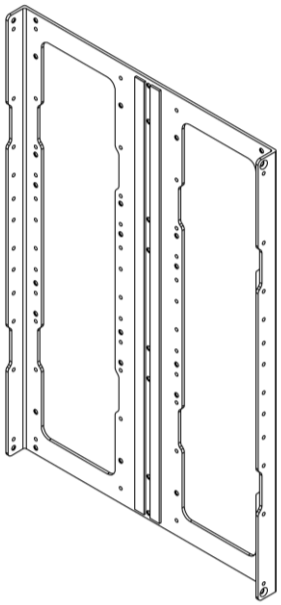
1 x Bottom Element
(Z+)



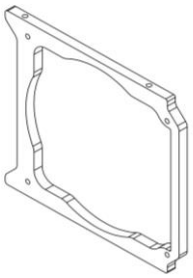
1 x Top Element
(Z-)



2 x Side Elements



8 x Ring Elements
(additional ring elements can be provided upon request)



5 MECHANICAL DRAWING

The following drawings show the dimensions of the Structure 6U. All dimensions are in mm.

A STEP file can be provided upon request.

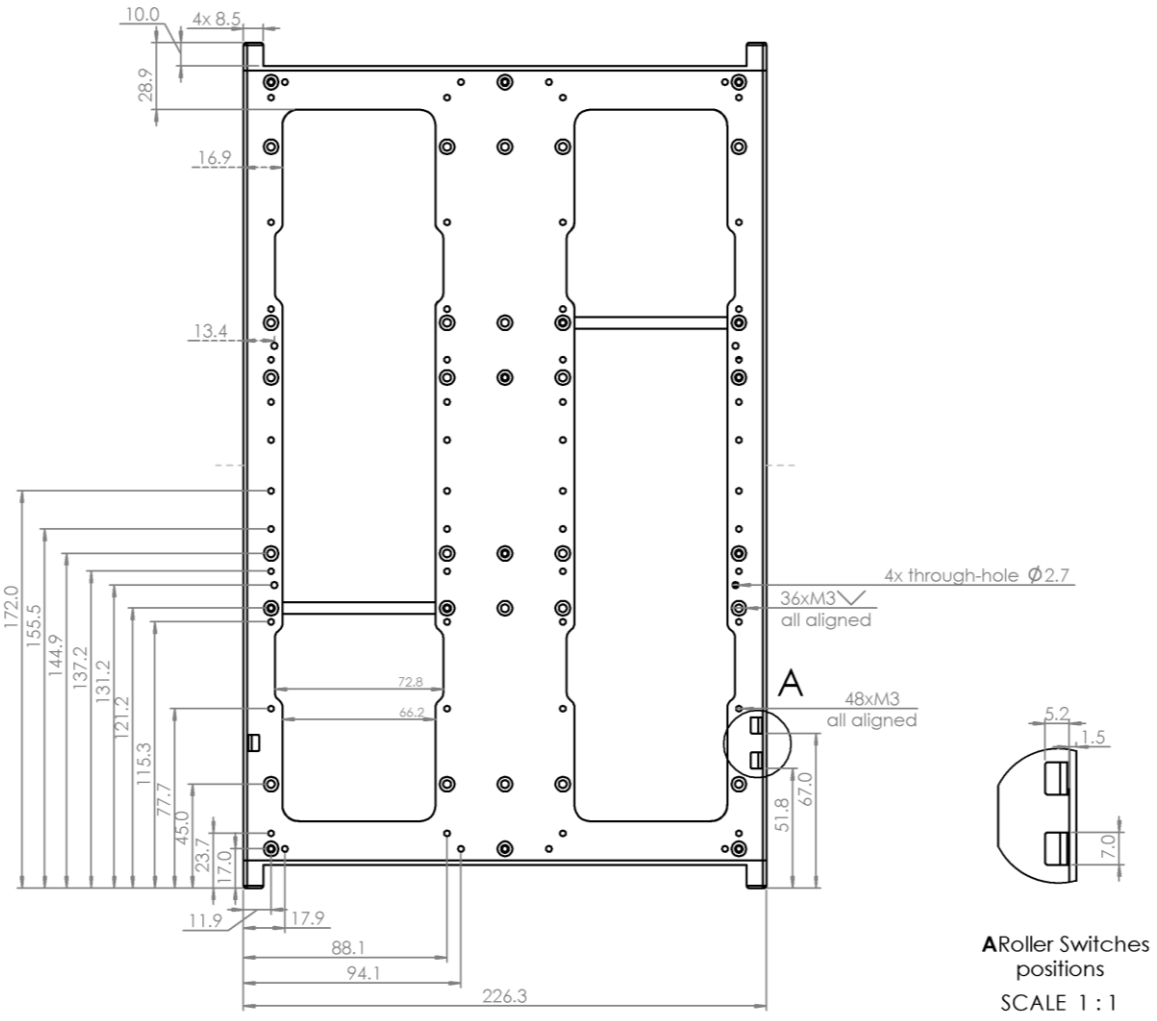


Figure 2: Structure 6U – Front View

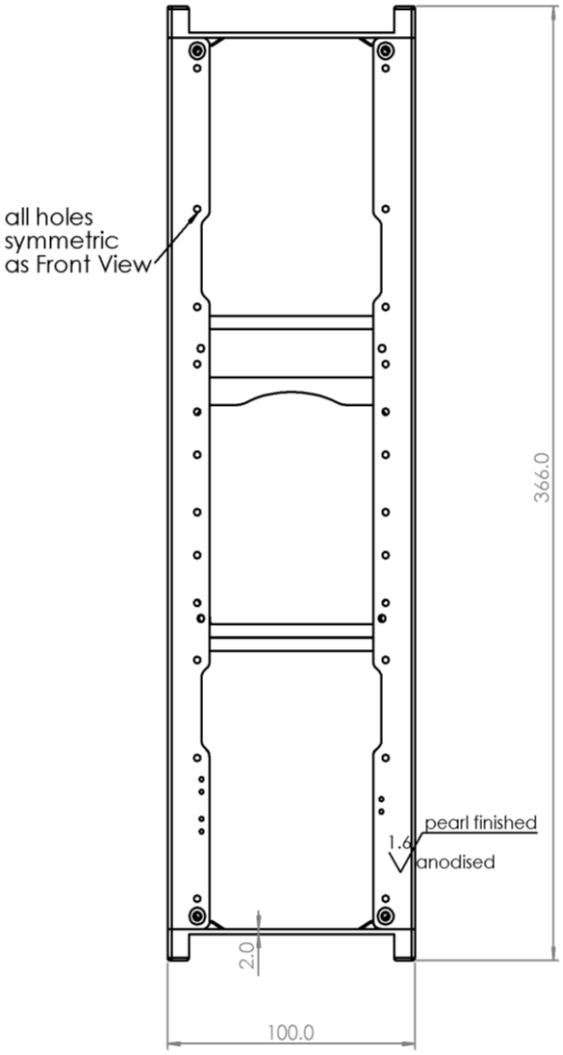


Figure 3: Structure 6U – Side View

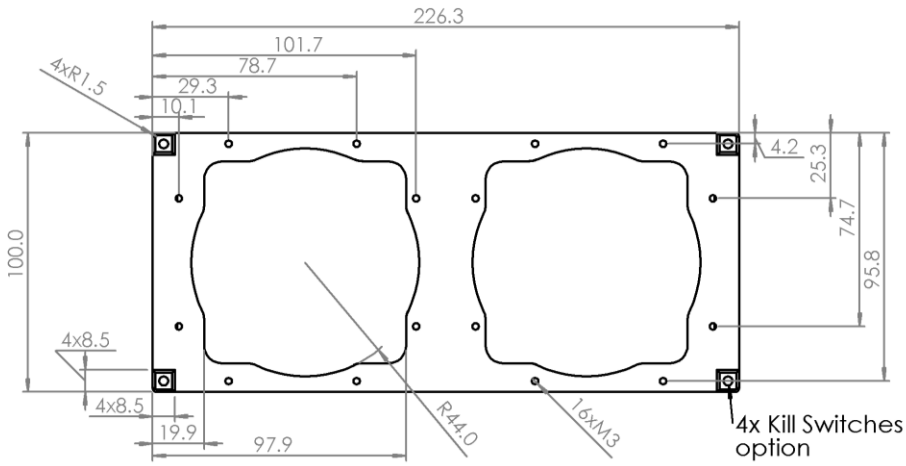


Figure 4: Structure 6U – Top View (Z-)

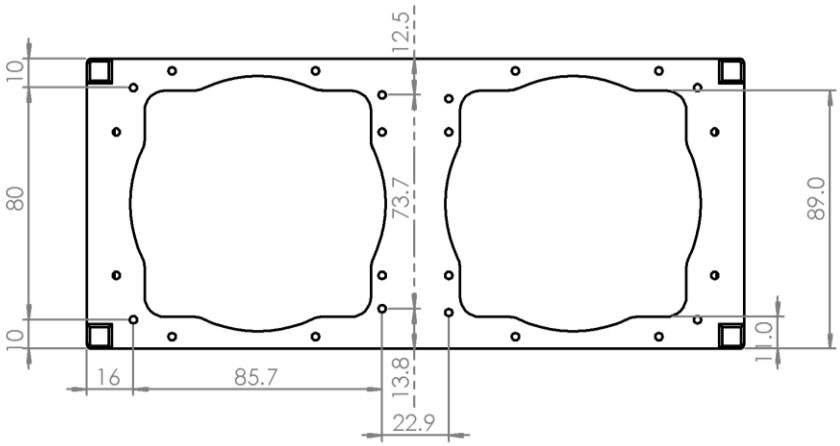


Figure 5: Structure 6U – Bottom View (Z+)

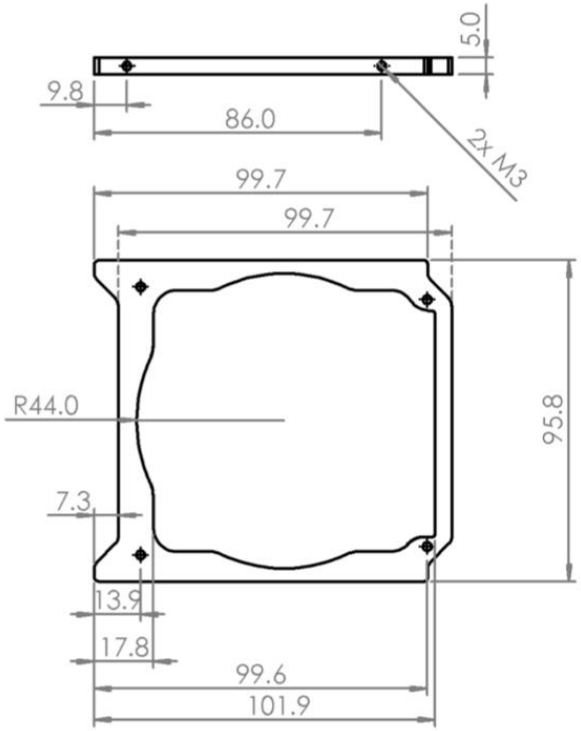


Figure 6: Structure 6U – Ring

The dimensional tolerances for the assembled **Structure 6U** comply with the CubeSat Design Specification.

6 MATERIALS

All the elements of EnduroSat's 6U Structure are made of Aluminum EN AW 6082-T6/T651, pearl finished and hard anodized.

7 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: 6 mm
- Torx - DIN965/ISO 7046-1 -A2- M3 – Length: 8 mm

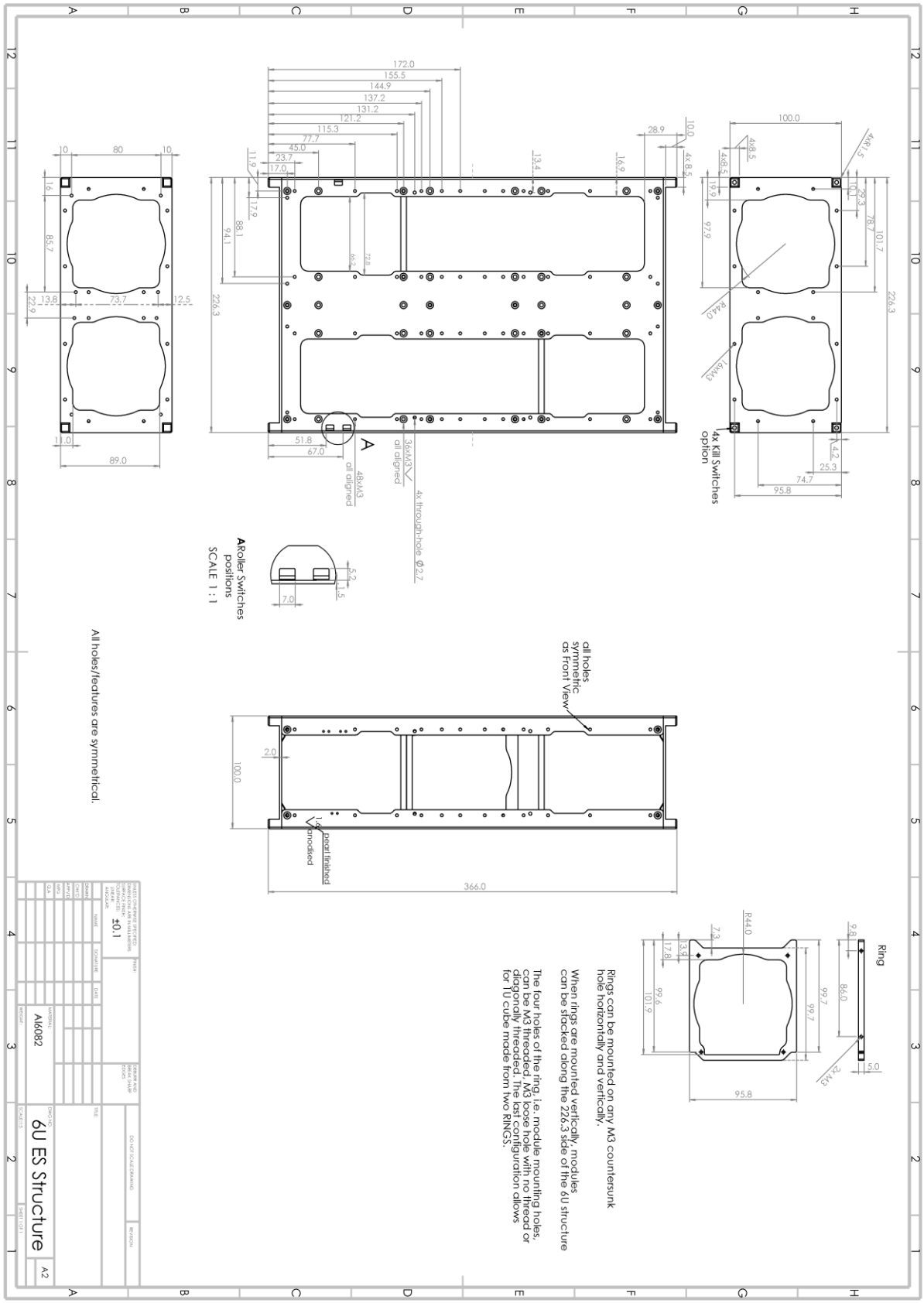
Recommended torque for mounting solar panels onto the structure is 0.8 Nm

8 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: 15ºC to 27ºC
    - Ideal storage humidity range: 30% to 60% relative humidity (RH)

9 APPENDIX


All holes/features are symmetrical.
A Roller Switches positions SCALE 1 : 1
all holes symmetric as Front View
Rings can be mounted on any M3 countersunk hole horizontally and vertically.
When rings are mounted vertically, modules can be stacked along the 226.3 side of the 6U structure
The four holes of the ring, i.e. module mounting holes, can be M3 threaded, M3 loose hole with no thread or diagonally threaded. The last configuration allows for 1U cube made from two RINGS.
Ring
4x Kill Switches option
4x through-hole Ø2.7
pearl finished
hard anodised
6U ES Structure
Al6082
A2