

ALBAPOD

INTERFACE CONTROL DOCUMENT

Introduction

The goal of this document is to allow PocketQube Developers to build their PocketQubes to be compliant with the latest version of the open PocketQube Standard as agreed by Alba Orbital, TU Delft and GAUSS.

Pocketqube Satellite Specification

The AlbaPod has been designed to accept a combination of 1p, 2p and 3p satellites.

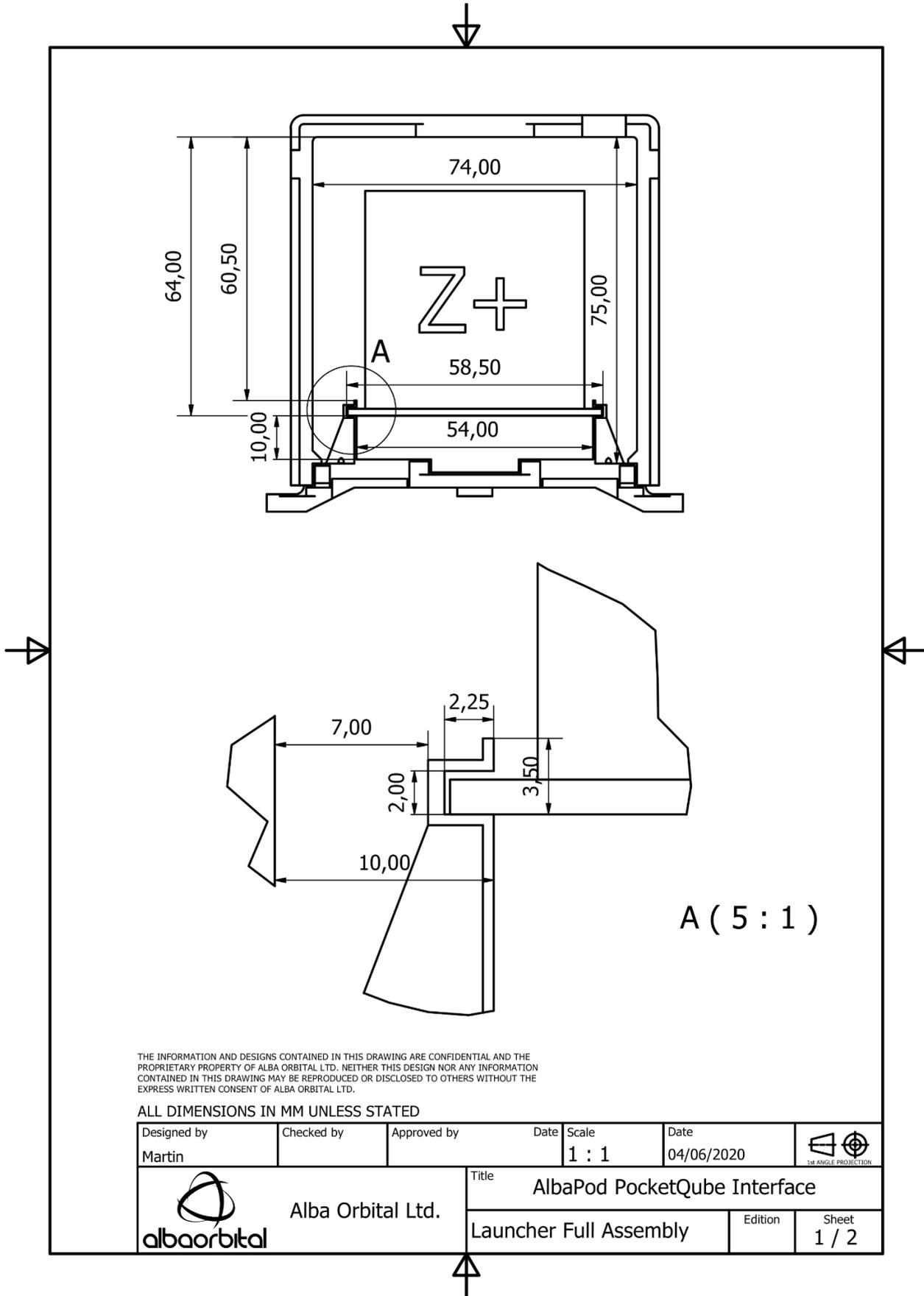
Standard PocketQube Dimensions

The standard AlbaPod has been designed to hold 6P of PocketQube capacity. The standard PocketQube sizes which can be accommodated are summarised below. The main body of the satellite without the backplane attached is expressed in terms of its length, L , breadth, B , and depth, D . The sliding backplane has its depth expressed in terms of its thickness, t .

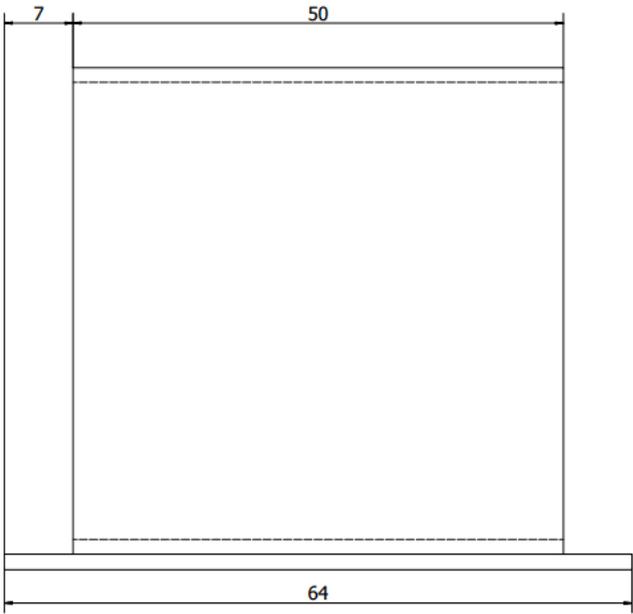
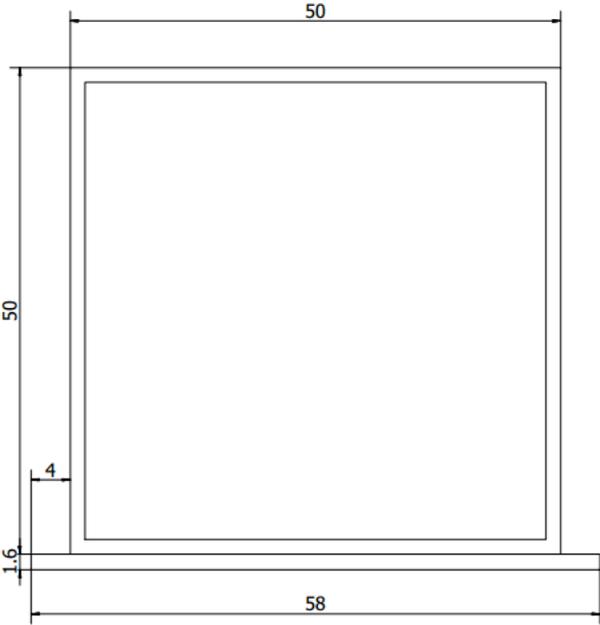
Number of Units (P)	External Dimensions without Backplane (mm)	Sliding Backplane Dimensions (mm)
	L x B x D	L x B x t
1P	50 × 50 × 50	64 × 58 × 1.6
2P	114 × 50 × 50	128 × 58 × 1.6
3P	178 × 50 × 50	192 × 58 × 1.6
'n'	$(64 \cdot n - 14) \times 50 \times 50$	$(64 \cdot n) \times 58 \times 1.6$

Standard PocketQube dimensions for a given number of units.

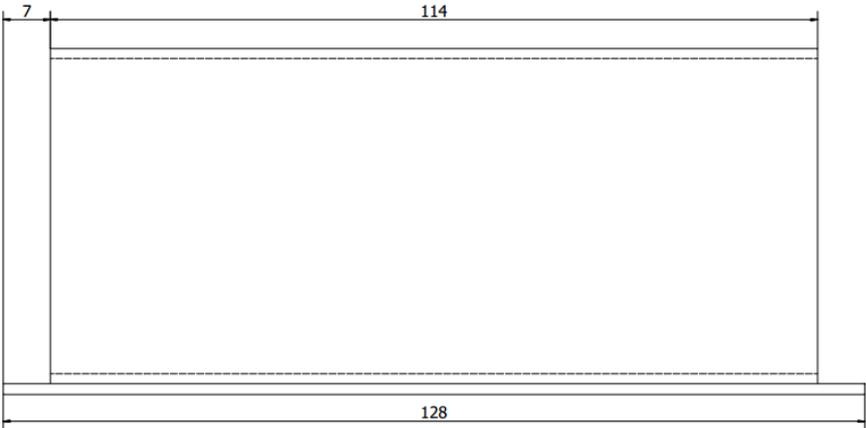
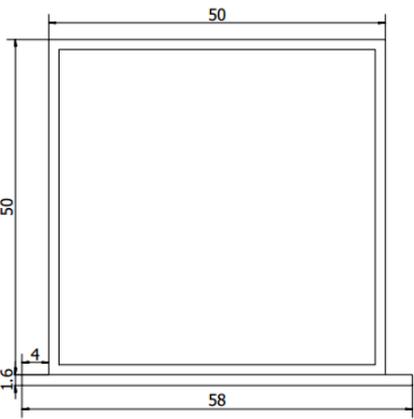
AlbaPod Cross-Section



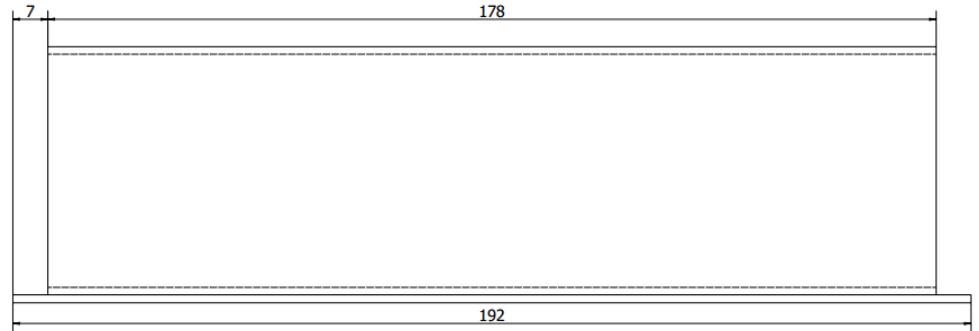
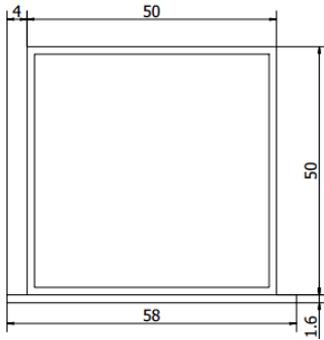
1p PocketQube



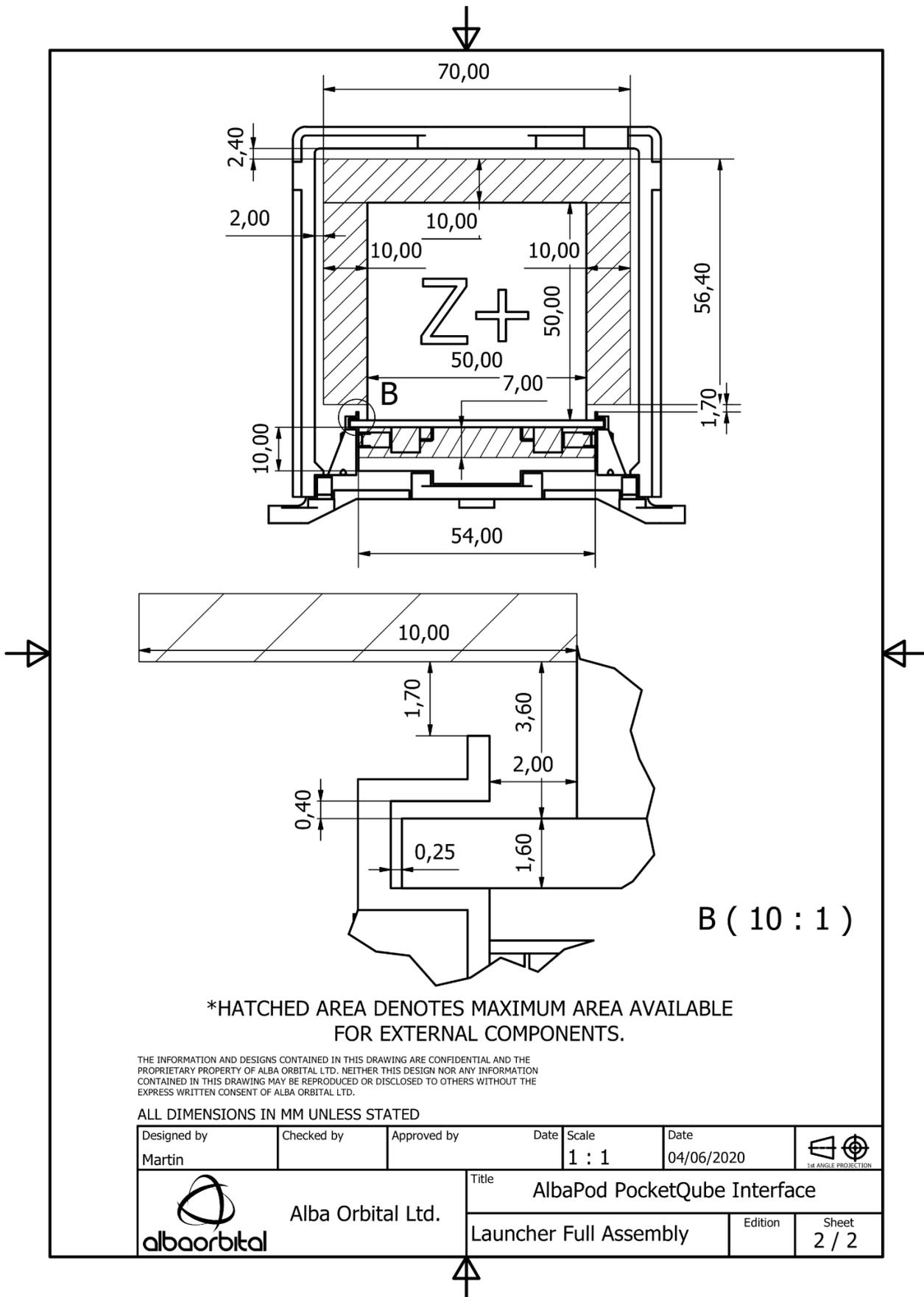
2p PocketQube



3p PocketQube



Maximum PocketQube Envelope within AlbaPod Deployer



Mass

PocketQubes flying on AlbaPod must have a mass of less than or equal to 250 grams per 1p (500 gram for 2p, 750 grams for 3p).

Kill Switch Specification & Location

Each satellite shall remain electrically off while located within the AlbaPod pocketqube dispenser. A minimum of two kill switches shall be used for this purpose to provide some redundancy (**PQ-Mech-12**).

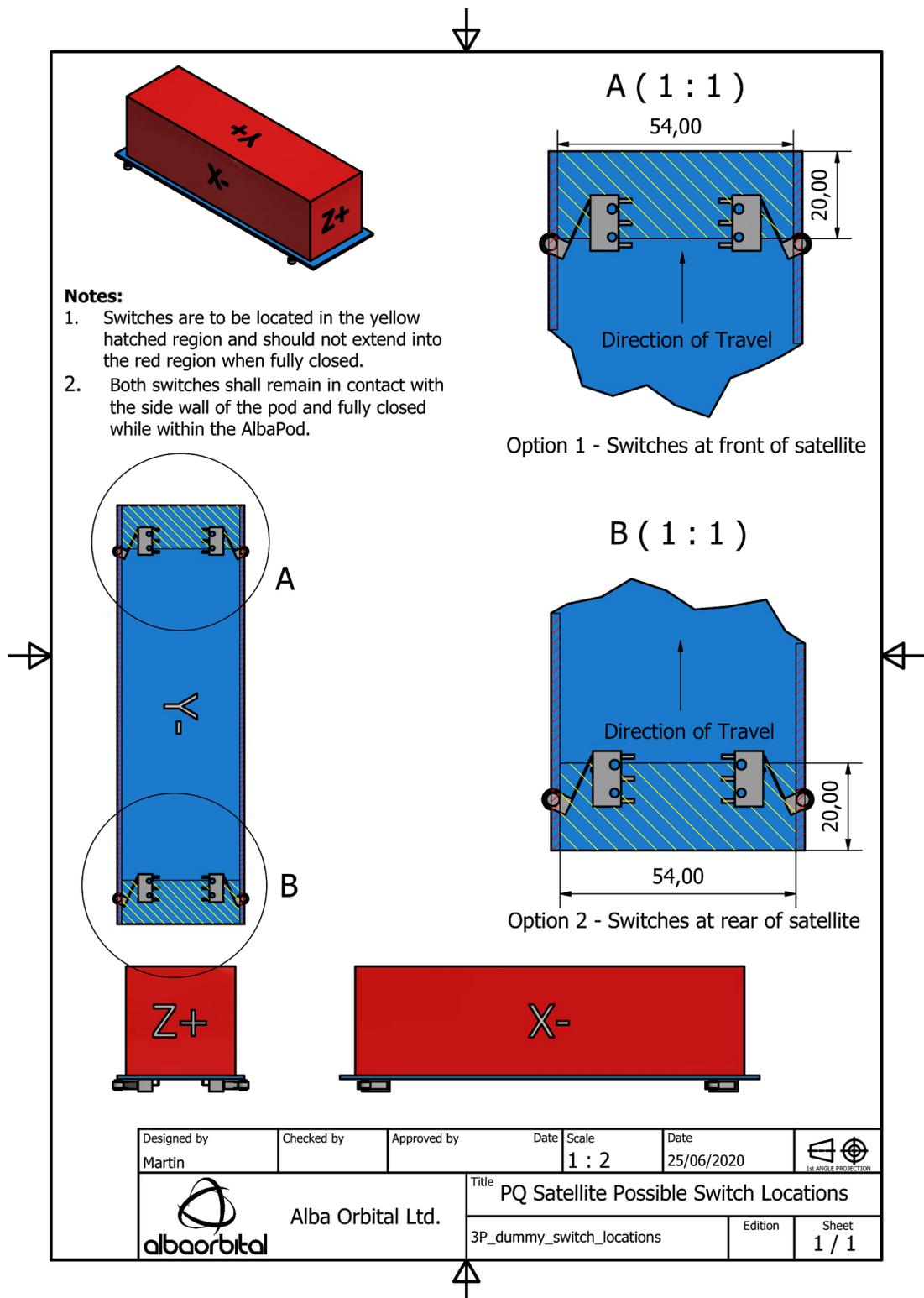
It is recommended that SPDT roller limit switches such as the OMRON D2F-L2-A-ND or D2F-L2-A1-ND shall be used as kill switches. Each switch shall be configured to be normally off when compressed and turn on after release.

Each switch shall be placed below the backplane of the satellite and be within 20 mm of either the front Z+ or rear Z- faces.

Switches shall be oriented such that the arm pivot point faces the direction of travel on ejection.

Each switch shall be fully compressed and remain in contact with the side wall of the pod for the full length of the rail.

For a full list of requirements please see the PocketQube standard issue 1. (<https://dataverse.nl/api/access/datafile/11680>)



Electrical / Software Delay

It is required that each satellite shall have a built in delay on boot which will prevent the possibility of generating interference between the satellite and the operations of the launch provider. This is mission specific and shall be conveyed in advance of launch.

Deployables

Deployable mechanisms are welcome on AlbaPod, but cannot touch the wall due to the increased risk jamming the pusher plate. All deployables must be constrained while in the AlbaPod.

Materials

Materials for Baseplate FR4, Aluminium (Alochrome or Anodized) or Windform. Please contact us if you are using any other material for your Baseplate.

Propulsion

If you are looking to fly propulsion systems, please contact us to discuss.

Pressure Vessels

If you are looking to fly propulsion systems, please contact us to discuss.

Qualification Testing

All PocketQubes must complete a vibration test for sinusoidal and random vibration before being integrated into AlbaPod. This can be found within the launch vehicle suppliers Payload User Guide (PUG). All PocketQubes must complete a thermal vacuum bakeout, to boil off sublimates and derisk outgassing issues for pod integration.

Licensing

All satellites must have frequencies coordinated by IARU, ITU and any national spectrum management agency. Satellites must be registered to their countries space objects registry (if in place).

Deorbiting

All PocketQube must deorbit within 25 years. Please use ESA DRAMA software (free to [download](#)) to calculate

Integration

Integration into AlbaPod will occur at Alba Orbital premises unless otherwise agreed. We expect this to occur approximately 60 days before launch.

Access to the Pod after Integration

There will be no way to remove a PocketQube from the AlbaPod after integration. Please ensure you do not require access.

Contact Details



Alba Orbital Team and cleanroom facility within Alba Orbital.

Alba Orbital Limited.

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