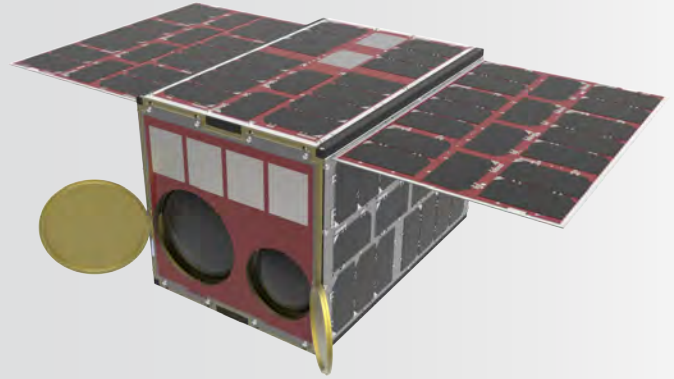


## 12U PLATFORM

### MAIN FEATURES\*

- In-house developed structure and subsystems based on ECSS standards
- 5-year design lifetime in LEO
- Population by ESA-qualified hand soldering operators
- Double redundancy and soft degradation in all subsystems
- Single-point failure tolerant design
- 32% higher payload power availability\*
- Integration time reduced by 55%\*
- Redundant CAN and MLVDS buses (OBC)
- Maximized payload volume due to flexible positioning



\*Platform developed under the framework of RADCUBE mission founded by ESA  
\*\* Than market average

### SUMMARY

C3S's main strength in the small satellite industry is that our engineering team devoted great attention to thermal design during the development of our platform. Therefore, the structure is optimized for high dissipation density and thermo-elasticity, both payload and platform wise. Along unprecedentedly high payload power availability our bus offers great flexibility regarding the shape and positioning of the payload. Our devoted team will be at your service from mission planning throughout the operation of the entire mission, until deorbiting.

### SERVICES

- Launch management
- Testing
- Remote testing facility using flatsat
- Mission planning
- Payload design & MAIT from TRL 4
- Mission Operation Center based data collection for one month or longer upon request /extension available

### USE CASES

- Earth observation
- IoT
- IOD
- Space weather monitoring

### TESTS PERFORMED\*

- ✓ SEE radiation test (in anechoic chamber)
- ✓ TID test
- ✓ Vibration test
- ✓ TVAC test (thermal cycling & thermal balance tests, performed in thermal-vacuum chamber)
- ✓ Burn-in test
- ✓ Functional test
- ✓ RF test
- ✓ Autocompatibility test
- ✓ Mechanical properties inspection

\* Test plan and test reports approved by ESA

## SPECIFICATION

### PLATFORM

Property	Value/Options	Notes
Dimensions	226.3 x 226.3 x 366 mm	12U size
Subsystem mechanical interfaces	Card Guide, Box-in-a-box	
Subsystem interconnection	Rigid backplane with nano-D and micro-D connectors	Micro-D: MIL-DTL-83513 Nano-D: MIL-DTL-32139
Redundancy	Subsystem level cold redundancy	
Lifetime	5-year design lifetime in LEO	
Operating temperature range	-40 °C ... +80 °C	Except battery pack (0°C...+50 °C)
Platform average power consumption	7.9 W	Mission dependent
Platform peak power consumption	25 W	Mission dependent
Battery capacity	115 Wh (3P4S) / 155 Wh (4P4S) / 190 Wh (5P4S)	Depending on battery pack
Power Buses	13.2 V – 16.8 V	
Command bus, Data bus	2 x CAN bus	Cold-redundant pair
	2 x M-LVDS	Cold-redundant pair to COM
	2 x M-LVDS	Cold-redundant pair to PAY
On-Board computer CPU Core	32bit ARM Cortex-M7	
On-Board clock frequency	Up to 300 MHz	
Mass storage capacity	16 GByte eMMC	
	16 MByte MRAM	Radiation resistant
TX/RX Frequency Band	399-401 MHz	Professional Band
Maximum transmit power	30 dBm	1 W
Symbol rate uplink	1.25-150 kbps	
Symbol rate downlink	5-150 kbps	
Modulation	OOK/FSK/GFSK	

Continues on page 3/3



## 12U Platform/Specification

Knowledge accuracy

0.2

Pointing accuracy

2°

## PAYLOAD ALLOWANCE

Property

Value/Options

Notes

Volume

12.3 - 13.1 U (Units = Litres)

Depending on payload positioning

Dimensions within Z-frame

216.2 x 216.2 x 235 mm  
+  
112.8 x 216.2 x 94 mm

Can be extended with up to  
800,000 mm<sup>3</sup>

Average power  
(average during 1 orbit)

Up to 40 W

Power available for the payload,  
depending on solar panel type  
and mission \*

Peak Power

Up to 165 W \*\*

Power available for the payload,  
depending on battery pack

Communication interface

CAN 2.0B, M-LVDS

\* The presented value is calculated for:  
Orbit: 600 km, SSO, 9h LTAN  
Orientation: Z+ axis points to Nadir, Wing is  
perpendicular to sun vector

\*\* It can be exceeded as an impulse, for a  
short period of time (<<1 sec)

The platform's attributes are mission dependent, the datasheet calculates with the basic configuration.