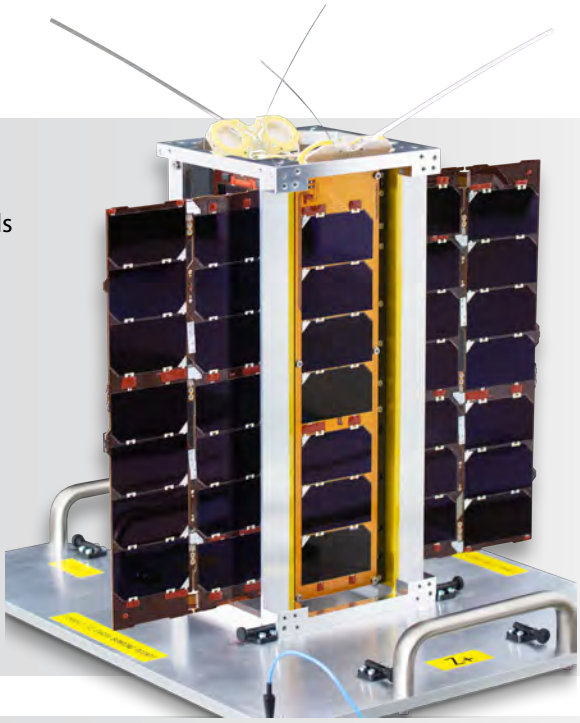
3U/ 3U PLUS PLATFORM

MAIN FEATURES*

- **Flight heritage** acquired in 2021 with the launch of RadCube
- 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)

*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. Furthermore, our unique radiator design allows unequalled freedom in payload dissipation along unprecedentedly high payload power availability. 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

- IoT
- Earth observation
- 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

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SPECIFICATION

3U PLATFORM

Property	Value/Options	Notes
Mass	3.3 kg	Payload excluded
Dimensions	100 x 100 x 340.5 mm	3U 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 / hot (COM) 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	4.5 W	Mission dependent
Platform peak power consumption	20 W	Mission dependent
Battery capacity	58 Wh / 65 Wh	90% / 100% SOC
Power Buses	3.3 V, 5.0 V, 9.9 V – 12.6 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 payload
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

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3U Platform/ Specification

Symbol rate uplink	1.25-150 kbps	
Symbol rate downlink	5-150 kbps	
Modulation	OOK/FSK/GFSK	
Knowledge accuracy	0.2°	
Pointing accuracy	2°	

3U PAYLOAD ALLOWANCE

Property	Value/ Options	Notes
Mass	Up to 4.7 kg	Depending on deployer/ launcher
Volume	1.25 - 1.4 U (Units = Litres)	Depending on payload positioning
Dimensions within Z-frame	146.5 x 94 x 94 mm	Can be extended with up to 150,000 mm^3
Average power (average power during 1 orbit)	Up to 20 W	Power available for the payload Mission dependent**
Peak power	35 W ***	Power available for the payload
Communication interface	CAN 2.0B, M-LVDS	

3U PLUS* PAYLOAD ALLOWANCE

Property	Value/ Options	Notes
Volume	1.45 - 1.65 U (Units = Litres)	Depending on payload positioning
Dimensions within Z-frame	172 x 94 x 94 mm	Can be extended with up to 200,000 mm^3

* Platform size depending on dispenser
3U PLUS platform dimensions: 100 x 100 x 366 mm

** 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.