



TITLE
COMPANY
ADDRESS
CONTACT

C3S PLATFORM DATA SHEET
C3S ELECTRONICS DEVELOPMENT LLC
HU-1097 BUDAPEST, KÖNYVES KÁLMÁN KRT. 12-14.
WWW.C3S.HU • INFO@C3S.HU • +36-21-200-5160

12U PLATFORM

MAIN FEATURES*

- In-house developed structure and subsystems
- 5-year design lifetime in LEO
- Double redundancy in all subsystems
- 32% higher payload power availability
- Integration time reduced by 55%
- Single-point failure tolerant design
- Redundant CAN and MLVDS buses (OBC)
- Maximized payload volume due to flexible positioning

* Platform developed under the framework of RADCUBE mission founded by ESA

SUMMARY

C3S's main strength in the small satellite industry is that our engineering team devoted great attention on 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
- Cyber security

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

SPECIFICATION

PLATFORM

Property	Value/Options	Notes
Mass	18 kg	Payload excluded
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	
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
Maximum incoming solar power	65 W	12-20 independent MPPT channels
Battery capacity	Up to 190 Wh	Depending on battery pack
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 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	

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12U Platform/Specification

Knowledge accuracy	0.00833°
Pointing accuracy	<<1°

PAYLOAD ALLOWANCE

Property	Value/Options	Notes
Volume	10 U	
Size (Rectangle-shaped)	244.4 x 216.2 x 216.2 mm	
Size (L-shaped)	347.8 x 216.2 x 216.2 mm	
Power Buses	3.3 V, 5.0 V, 9.9 V – 12.3 V	
Average power (average during 1 orbit)	Up to 30W	Power available for the payload, depending on solar panel type
Peak Power	Up to 165W	Power available for the payload, depending on solar panel type
Communication interface	CAN 2.0B, M-LVDS	