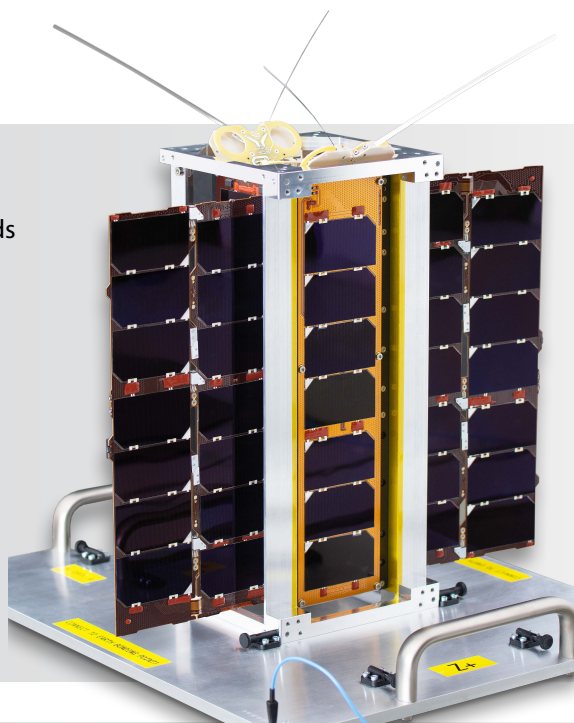


3U/ 3U PLUS PLATFORM

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
- IOD
- Earth observation
- 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



TITLE
COMPANY
ADDRESS
CONTACT

C3S PLATFORM DATA SHEET, v03 - 02/02/2022 C3S
ELECTRONICS DEVELOPMENT LLC
HU-1097 BUDAPEST, KÖNYVES KÁLMÁN KRT. 12-14.
WWW.C3S.HU • SALES@C3S.HU • +36-21-200-5160

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 |
| Maximum incoming solar power | 50 W | 6 independent MPPT channel |
| 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 |

Continues on page 3/3



TITLE
COMPANY
ADDRESS
CONTACT

C3S PLATFORM DATA SHEET, v03 -02/02/2022 C3S
ELECTRONICS DEVELOPMENT LLC
HU-1097 BUDAPEST, KÖNYVES KÁLMÁN KRT. 12-14.
WWW.C3S.HU • SALES@C3S.HU • +36-21-200-5160

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.