# C3S EPS2000 DATASHEET

## Description

The EPS2000 from C3S is an all-in-one high performance CubeSat and NanoSat power supply solution offering uncompromised customizability without sacrificing size, cost and reliability. The EPS can be configured to have up to 20 independent MPPT channels, a customer configurable battery pack and LCL output channels.

Thanks to the wide 6 – 60 V solar input voltage range the EPS2000 is a perfect choice for missions with larger, but fragmented solar arrays.

The EPS2000 utilizes state-of-the art Gallium Nitride transistor technology in combination with flight-proven Si-based power semiconductors for the MPPT converters, which ensure high efficiency and thus minimal heat dissipation throughout the entire operating range.

The single point failure tolerant control, power electronics and protection segments ensure reliable operation, all while being capable of handling a peak solar input power of up to 1 kW.

EPS2000 is currently in TR4 and will reach TRL7 by Q3 2025 in one of our ongoing contracted projects.

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| **Solar cell inputs** | |
| Solar cell type | Triple junction solar cells, η≈30% |
| Total number of MPPT channels | 20 |
| Input voltage range | 6 - 60V |
| Low-power MPPT peak input power | 12 W |
| Low-power MPPT series solar cells | 3-7S |
| High-power MPPT peak input power | 50 W |
| High-power MPPT series solar cells | 16-19S |
| Peak solar input power | 1 kW* |
| Converter stability | According to ECSS-E-ST-20C |
| Peak efficiency | 97% |
| **Energy storage** | |
| Battery pack series configuration | 7-8 series 18650 cells |
| Battery pack parallel configuration | 3 or more parallel strings |
| Battery pack stored energy | 200+ Wh |
| Integrated battery heater | Yes |
| **Power distribution** | |
| Output voltage | 23 - 33 V (28 V unregulated) |
| Number of LCL channels | Configurable based on the mission requirements |
| LCL output current | Configurable based on the mission requirements, min. 5 A |
| Peak output power | 950 W* |
| **Communication** | |
| Primary interface | Redundant CAN |
| Secondary interface | UART |
| **Mechanical** | |
| Mass | up to 6.8 kg |
| Volume | up to 7 L |
| Material | Precision milled T-7070 aluminium |
| **Environmental** | |
| Qualification temperature | -40°C to 60°C |
| Shelf-life | up to 6 months |
| **Special features** | |
| SDM | End-of-life battery passivation |
| Soldering | Sn63Pb67 based soldering process |
| | |
| * if a sufficient number of battery strings are available | |