

## PSM28 VNX+ Power Supply Module



Our PSM28 is a 144W (nominal) Power Supply Module designed to plug into small form factor VNX+ based chassis.

The Frontgrade™ PSM28 VNX+ is a compact, high-efficiency power solution built for SWaP-constrained defense, aerospace, and non-terrestrial space platforms. With up to 288W of peak power output from an unregulated 28V input, it delivers clean, regulated 12V and 3.3V\_AUX power to VNX+ modules—supporting modern mission systems without compromising space or weight.

Designed with GaN technology, the PSM28 maximizes power density while reducing heat, enabling reliable operation in harsh environments. It offers three 12V outputs (one dedicated, two switched) plus a 3.3V\_AUX rail, giving integrators flexible power distribution across their system architecture.

Built-in fault protection, including input under/over-voltage, output overcurrent, and EMI filtering, helps ensure mission continuity, even under power anomalies or environmental stress. These protections reduce risk and support longer system life with fewer field failures.

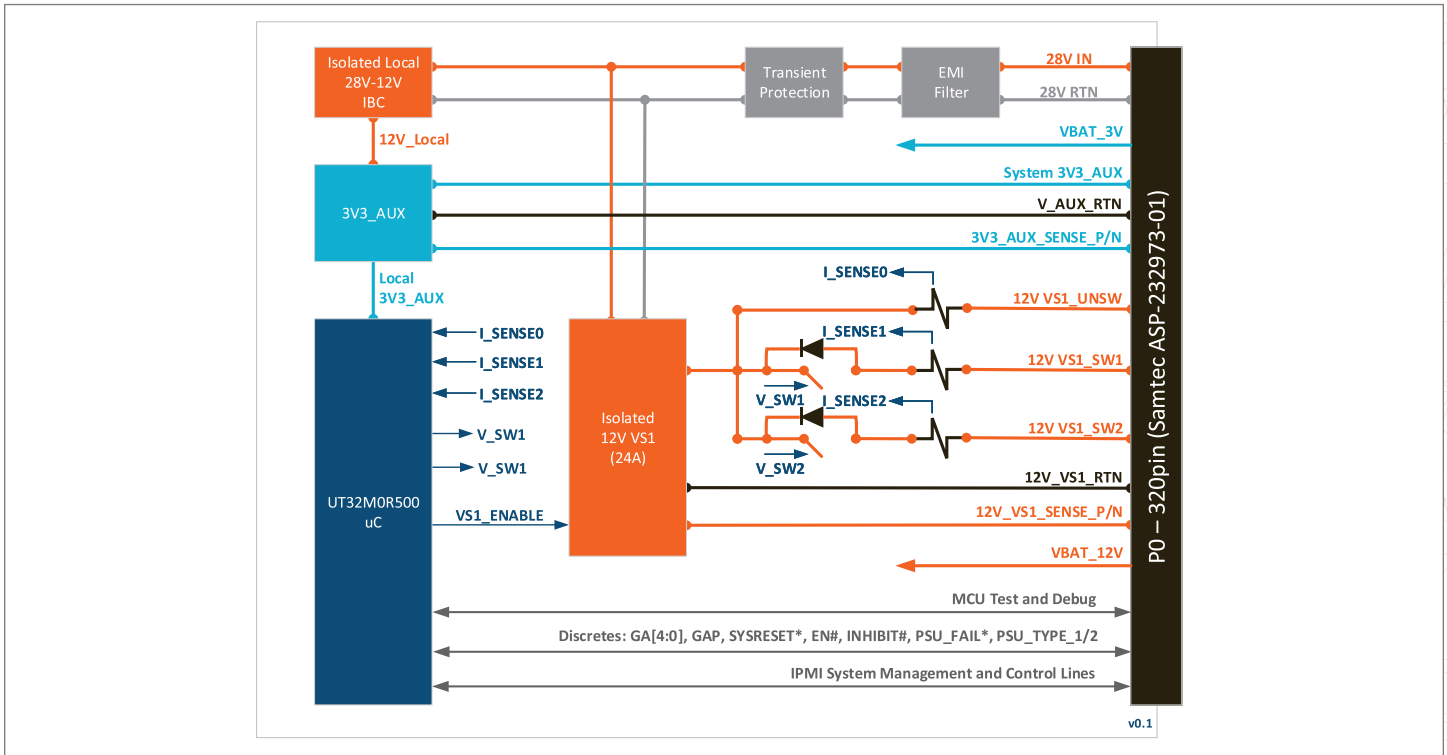
With its embedded UT32M0R500 ARM® Cortex-M0+ microcontroller, the PSM28 adds system intelligence, delivering real-time telemetry and chassis management to the system controller. This enhances diagnostics, improves maintainability, and supports smarter, data-driven sustainment strategies for mission-critical deployments.

### Other Features

- Isolated Power Supply with Input EM Filtering
- High-efficiency GaN-based design
- VITA 90 VNX+ compatibility
- Unregulated 28V input range support
- Integrated microcontroller for system management
- Compact, ruggedized form factor

### Applications

- Unmanned aerial systems (UAS/UAVs)
- Small satellite subsystems (LEO/MEO/GEO)
- Signal Intelligence (SIGINT) and electronic warfare (EW) systems
- Mission Computers—Powering embedded processors, GPUs, and FPGAs within VNX+ or VPX systems
- UAVs/UGVs/USVs
- EW/ECM Pods—for RF and processing subsystems
- CubeSats or SmallSats



## Specifications

<b>Telemetry</b>	<ul style="list-style-type: none"> <li>▪ Analog Thermistor Interface</li> <li>▪ Output Current and Voltage</li> </ul>
<b>Mass &amp; Thermal</b>	<ul style="list-style-type: none"> <li>▪ Mass: &lt;0.35 kg</li> <li>▪ 39mm VNX+ form factor</li> <li>▪ -25°C to +65°C operational case temperature</li> <li>▪ Power Dissipation: &lt;22W @ 144W Output Power</li> <li>▪ TID: 30-50krad (Si)</li> <li>▪ SEL Immune &lt;= 37MeV</li> </ul>
<b>Secondary Output Power</b>	<ul style="list-style-type: none"> <li>▪ 12V at 288W (peak)</li> <li>▪ 12V at 144W (thermal/reliability nominal continuous)</li> <li>▪ Three 12V VS1 outputs                             <ul style="list-style-type: none"> <li>- 1 Unswitched and 2 Switched</li> <li>- Sharable</li> <li>- 12A max spread across all outputs</li> </ul> </li> <li>▪ One 3.3V_Aux (2A max)</li> <li>▪ ENABLE_B and INHIBIT_B discrete controls for 3.3V and 12V output power generation</li> </ul>
<b>Operational Life/ Reliability and Performance</b>	<ul style="list-style-type: none"> <li>▪ Module reliability over 0.9 @ 5 years @ 70°C</li> <li>▪ Module MTBF: &gt;481,263 hours</li> <li>▪ System SEU rate: No more than one ground intervention per year for typical LEO Missions</li> <li>▪ TID of 30 to 50 krad (Si) unshielded</li> <li>▪ NASA PEM-INST-001 Level-2 parts pedigree available</li> </ul>

## PSM28-NP Power Supply Module