Launch Power Supply

The Launch Power Supply powers, controls and monitors the spacecraft during integration / validation through the umbilical interface. The LPS provides spacecraft control and monitoring and electrical power provision on launch pad through umbilical interface compatible with launch environment.

It is used during integration / validation phases and during launch campaign.

As a baseline, it provides:

- Multi independent output power lines (adaptable power, line per line)
- Batteries trickle charge.
- Main bus conditioning and monitoring.
- Overvoltage detection.
- Line routing to / from other SCOE.
- High Power Command (HPC).
- Standard Over Voltage and Over Current protection.

A LPS is based on COTS items (power supplies, electronic loads, PC, …) enhanced by Clemessy's SyCTRL products. It is designed as a self standing equipment with its own local GUI and is remote driven through a Ethernet TCP/IP interface (CCSDS, FEECP, EDEN, PUS Services etc.). It is fitted with self test and safety loop, embedded in 19''rack and container.

As options, it can be fitted with:

- Second level over voltage / over current protection (per line, per group of lines etc.)
- Specific sensor simulation (thermistor, cell sample, switch etc.)
- Mini rack, portable rack, reinforced rack
- Interface cable to launch pad interface
- Mains insulation transformer unit
- Reusable container
- Umbilical link tester
- Full redundancy

Launch Power Supply — TECHNICAL DATA

Function

- Space craft powering through umbilical interface
- Battery trickle charge
- High power ON / OFF commands
- Main bus voltage monitoring and over voltage detection
- Line routing to TM/TC & TT&C SCOE
- Umbilical parameter monitoring
- Strap and switch simulation
- Over-voltage, over-current, under-voltage, reverse-over-current protection
- User defined script features
- Remote and local control mode
- Self test capability
- Safety loop signal management (Inhibit input & Fault output signals)
- Interface cable to spacecraft
- Ariane 5, Proton, Dniepr, Soyuz, Vega compatible

Implementation

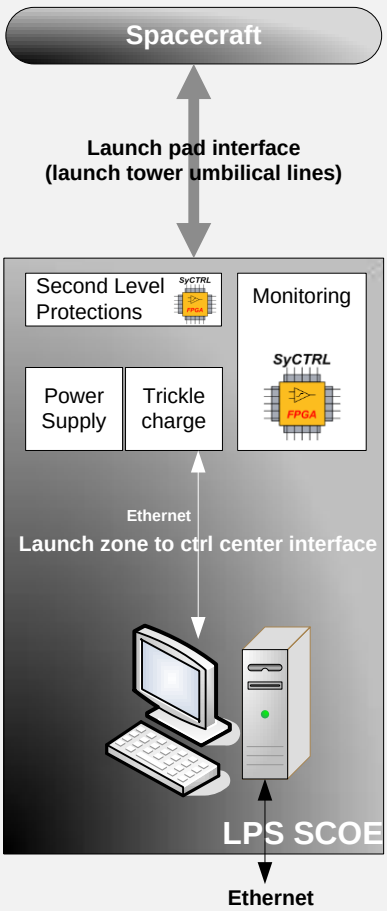
- Power provided by DC source or solar array power supply
- Battery trickle charge current provided by DC power supply
- Independent protection features based on SyCTRL
- Ethernet TCP/IP interface for remote control
- Windows / Linux man machine interface for local control
- 19'' rack integrated (standard rack, box container or reinforced rack for critical vibrated areas – launch table)

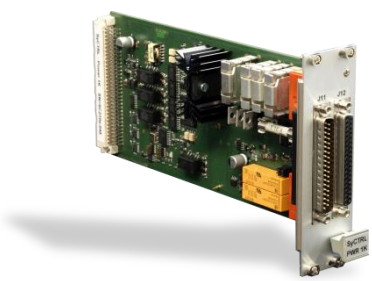
Performance

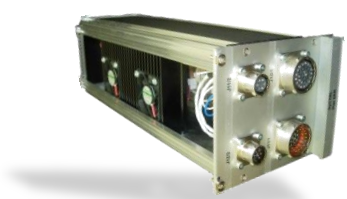
- Satellite requirement driven
- Protection reaction time down to 30 µsec

Used technology

- Keysight or other power supplies
- Clemessy's SyCTRL second level protection and TM/TC features
- LXI interface with power supplies and electronic loads
- Python script language







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