

LM900™ Bus Program Specification Sheet



MISSION SUITABILITY

The LM900™ spacecraft is a versatile, three-axis stabilized bus that is designed to carry remote sensing payloads in LEO orbits. It provides precision pointing on an ultra-stable, highly-agile platform. Payloads for a variety of scientific and remote sensing applications can be accommodated including laser sensors, imagers, radar sensors, electro-optical sensors, astronomical sensors, as well as planetary sensors. The LM900™ spacecraft design is based on the IKONOS® 1-meter resolution imaging bus that has been operational since September, 1999. Hardware heritage is also from the IRIDIUM® program which has more than 70 spacecrafts in orbit.

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MISSION LIFE

- 6-year mission design life
- 5-year mean mission duration
- 7 years of expendables for nominal orbit
- Redundancy: S-band transceiver, GPS, command decryption, on-board processor, internally redundant electronics, inertial reference unit, torque rod coils, magnetometer, star tracker, sun sensor, thrusters, heaters, thermistors, thermostats, battery cell, mechanism springs, deployment actuators

PAYLOAD ACCOMMODATION

- Payload Weight: up to 470 kg
- Payload Power: 344 W, 35% duty cycle (based on reference mission, greater values obtainable)
- External Volume: 220 cm dia x 127 cm
- Internal Volumes: 78 cm dia x 101 cm
- Electronics Bay: 93 x 83 x 38 cm
- Field of View is nominally a hemisphere centered on the nadir vector
- Precision Thermal Control available
- MIL-STD-1553 or RS-422 interface

STRUCTURE

- Spacecraft Mass: 530 kg wet, 492 kg dry
- Hexagonal aluminum honeycomb
- 102 cm high by 157 cm across

ATTITUDE CONTROL

- Zero momentum, three-axis stabilization
- GPS orbit positioning: to 100 m
- Pointing control: 12 arc seconds, 1 sigma
- Pointing knowledge: 10 arc seconds, 1 sigma
- Ultra low jitter
- High agility: 4 deg/sec and 0.2 deg/sec²

COMMAND & DATA

- 32 bit R3000 processor, 10 MIPS @ 12.5 Mhz
- Serial and bi-level command channels
- Bi-level conditioned telemetry channels

ELECTRICAL POWER

- Unregulated Bus: 28 +/- 6 Vdc
- Solar Array Power: 1200 Watts at BOL
- 50 A-hr NiH₂ battery
- Nominally three deployable high efficiency GaAs Solar Arrays

THERMAL CONTROL

- Passive coatings
- Thermal blankets
- Thermostatically controlled redundant heaters with ground commandable set points

COMMUNICATIONS

- 2 kps uplink 32 kbps downlink S-band TT&C

PROPULSION

- Low risk hydrazine blow-down system
- 6 thrusters: 0.9 N each
- Monopropellant: 38 kg
- Delta V: 66 m/s 3-sigma

MISSION UNIQUE OPTIONS

- Payload data interfaces
- Solid-state recorders
- On-board processor
- Payload data formatter
- Reaction wheel & torquer sizes
- Wide-band & real time downlinks
- Antennas & gimbals
- Battery & power bus capacity
- Solar array size and type
- Solar array drive assemblies
- Base structure and overall configuration

ORBIT CAPABILITY

- LEO: 400 - 800 km altitude
- 28.5° inclined up to polar orbit

LAUNCH VEHICLE COMPATIBILITY

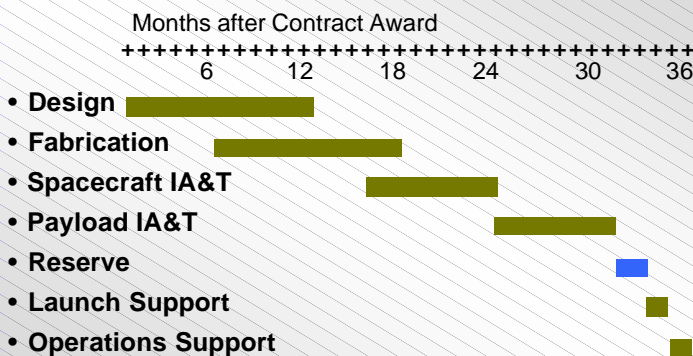
- Athena, Taurus, Delta, Atlas
- 92" Payload Fairing



GROUND SYSTEM

- DSN or STDN compatible

PROGRAM SCHEDULE



For more information contact:
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