TriG™ RO AND TriG™ POD

The Moog TriG GPS Receiver is a follow-on to NASA JPL's highly successful BlackJack GPS receiver. Preserving a high degree of Blackjack heritage, the hardware architecture, software code base and digital signal processing (DSP) for the POD function remain largely the same. The occultation software is based on a combination of the operational COSMIC software and new software developed at JPL.

Moog TriG receiver has the capability to track both the legacy L1CA / L2 Codeless and the new L2C / L5 signals from GPS; as well as new GNSS signals from Galileo and GLONASS. The ability to track multiple GNSS signals allows for significant improvement in the quality and quantity of the radio occultation measurements, as well as providing for seamless operations during outages of any given constellation.

Utilizing a cPCI form factor, Moog implementation creates a modular, expandable, reconfigurable receiver platform that can address single antenna POD-only applications or up to 16+ antenna reflection for science applications.

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TriG RO AND TriG POD

PERFORMANCE CHARACTERISTICS

TriG RO

TriG POD

NavSBR

Family	JPL BlackJack+ TOGA	JPL BlackJack+ TOGA	Goddard Navigator
Freq	L1,L2, L5,Lx	L1,L2,L5,Lx	L1 CA
Antennas	4-16	4	2
Orbit	LEO	LEO	LEO-GEO
CPU	2	1	1
Digital Signal Proc.	Reconf. FPGA	Reconf. FPGA	FPGA
Heritage	Space Flight Qualified	Space Flight Qualified	1 Flight
Accuracy Position Velocity	Post-Proc cm mm/sec	Post-Proc cm mm/sec	real-time accuracy <10 m GEO, <1 m LEO 2 cm/sec
Power	60W	20W	12W
Size Mass	19x22x12 5.2kg	19x14x12 2.8kg	19x24x8 or 3U card 2.3Kg, 0.342Kg
PPS	One PPS out synchronized to GPS	One PPS out synchronized to GPS	One PPS out synchronized to GPS
Interfaces Supported	RS422 Serial Port, LVDS, MIL-STD 1553 Option	RS422 Serial Port, LVDS, MIL-STD 1553 Option	RS422 Serial Port, LVDS, MIL-STD 1553 Option
Number of Channels	16	16	12
Time Accuracy	<100nSec	<100nSec	<50nSec
Acquisition Time	<10.0 min GEO	<10.0 min GEO	<10.0 min GEO, Cold Start <1.0 min LEO

THE TriG IS AVAILABLE IN THE FOLLOWING OPTIONS:

1) Four 3U cPCI card precision orbit determination receiver (POD)
2) Seven 3U cPCI card radio occultation science receiver (with POD)

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