TR-2S LEO

OEM GNSS Board

FUGRO SPACESTAR®
REAL-TIME ACCURATE POSITIONING
SYSTEM ENABLED

Key Features

- Radiation tolerant & space-hardened
- Spoofing & Jamming Detection
- Advanced Multipath Mitigation
- Fast Acquisition Channels
- 874 Channels, All GNSS Tracking
- SpaceStar for 5cm / 5 minutes
- IPC Class 3 Electronics
- CE-1155 Conformal Coating
- MEMS Oscillator
- MIL-STD-810G Shock & Vibration

TR-2S LEO is a compact GNSS board customized to deliver centimeter-position accuracy with SpaceStar in Low Earth Orbit while under typical radiation exposure. Patented anti-spoofing and jamming detection provides operational reliability without user intervention. TR-2S LEO utilizes all GNSS constellations with multi-frequency tracking for robust PVT and a variety of interface choices.

TR-2S LEO Specifications

Tracking	Total Channels	874	
	GPS	L1 C/A, L1C, P1, P2, L2C, L5	
	GLONASS	L1 C/A, P1, P2, L2 C/A, L3	
	Galileo	E1, E5, E5A, E5B, E6	
	BeiDou	B1, B1C, B2B, B2, B2A, B3	
	QZSS	L1C C/A, L1C, L2C, L5, L6, L1S, L1Sb, L5S	
	SBAS	L1, L5	
	NavIC	L1, L5, S	
	L-Band	1525-1560 Mhz	
Performance		Horizontal (m)	Vertical (m)
	Standalone	1.000	1.500
	SBAS	0.500	0.850
	DGPS	0.250	0.500
	SpaceStar (PPP)	0.050	0.100
	RTK	0.008 + 1 ppm	0.015 + 1 ppm
	Network RTK	0.008 + 0.5 ppm	0.015 + 0.5 ppm
	Static / Fast Static	0.003 + 0.1 ppm	0.004 + 0.4 ppm
Time to First Fix	Cold Start	< 35 s	
	Warm Start	< 5 s	
	Reacquisition	< 1 s	
	RTK Initialization	2 - 6 s	
Output Rate	Position	up to 200 Hz	
	Measurements	up to 200 Hz	
Wired I/O	Main Connector	40-pin Micro Header, 2 x 20 pos, 0.050” pitch	
	GNSS Antenna	1 x MMCX, +5 VDC Ports (0.16A max)	
	Serial	1 x RS232 up to 460.8 kbps 2 x RS232/RS422 up to 460.8 kbps	
	USB	1 x USB 2.0 Full Speed. Up to 3.0 Mbps UART	
	CAN	1 x CAN 2.0	
	Event Marker	1 x Event Marker	
	GPIO	2 x Configurable Logic-Level GPIO Ports	
	1PPS	1 x 1PPS output synchronized to GPS or UTC	
Storage	Internal Memory	Up to 16 GB	
Status/Interface	LEDs	4 x External LED Drivers	
Power	Input	+4 to +40 VDC	
	Power Consumption	2.2 W typical	
Physical	Dimensions	55 x 40 x 11 mm	
	Weight	20 g	
Radiation Tolerance	Single Event Effects (SEE)	No destructive events	
	Total Ionizing Dose (TID)	25 krad	
Environmental	Operating Temperature	-40°C to +80° C	
	Storage Temperature	-40°C to +85°C	
	Shock & Vibration	MIL-STD-810G ISO-9022-31-06 Shock, Severity 5 IEC 60068-2-6 Sine Vibration	

GNSS performance is dependent on signal quality, satellite geometry, ionospheric and tropospheric conditions, baseline length, multipath effects and RF interference. Specifications may be changed without notice.