TAU-180

GNSS-Aided Inertial Navigation System



Key Features

- Spoofing and meaconing detection
- Jamming suppression
- Autonomous True North finding
- Full attitude determination
- GNSS-independent navigation
- Maintenance-free

The TAU-180 is a highly resilient, GNSS-aided inertial navigation system. It integrates fiber-optic gyroscopes and MEMS accelerometers with a multi-band GNSS receiver, providing anti-jamming capability and spoofing detection for time-critical missions in highly constrained operational environments.

It is suitable for a wide range of applications including mobile radar platforms, unmanned aerial vehicles, land vehicles, and more.

TAU-180 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	
Navigation (RMS)*		Horizontal (m)	Vertical (m)
	Standalone	1.000	1.500
	SBAS	0.500	0.850
	DGPS	0.250	0.500
	RTK	0.008 + 1 ppm	0.015 + 1 ppm
Attitude (RMS)**		Heading	Pitch/Roll
	Dual-antenna, 2 m baseline	< 0.09 deg	-
	Dynamic Accuracy	< 0.15 deg	< 0.01 deg
Signal Protection	In-Band Interference Rejection (IBIR)	Up to 30 dB	
	J/S Ratio	Up to 90 dB	
Time to First Fix	Cold Start	< 35 s	
	Warm Start	< 5 s	
	Reacquisition	< 1 s	
	Alignment	< 5 min (without GNSS heading) < 30 s (with GNSS heading)	
Output Rate	Position	up to 200 Hz	
	Measurements	up to 200 Hz	
Wired I/O	Main Connector	25-pin micro D-SUB connector with screw lock (M83513/03-D03N by ITT Cannon)	
	GNSS Antenna	2 x SMA, +5 VDC Ports (0.16A max)	
	Serial	2 x RS232/RS422 up to 460.8 kbps	
	USB	1 x USB 2.0 Full Speed. Up to 3.0 Mbps	
	CAN	1 x CAN 2.0	
	Event Marker	1 x Event Marker	
	1PPS	1 x 1PPS output synchronized to GPS or UTC	
Storage	Internal Memory	Up to 16 GB	
Power	Input	+6 to +36 VDC	
	Power Consumption	12 W typical	

TAU-180 Specifications

IMU Performance	Gyroscope performance	Technology	FOG		
		Dynamic range***	± 490 °/s		
		Bias repeatability	0.5 °/hr		
		Angular Random Walk	0.025 °/√hr		
	Accelerometer performance	Technology	MEMS		
		Dynamic range***	±8 g	±15 g	± 40 g
		In-run Bias Stability	5 µg	10 µg	20 µg
		Bias repeatability	0.5 mg	0.7 mg	1.2 mg
		Velocity Random Walk	0.015 m/s/√hr	0.035 m/s/√hr	0.045 m/s/√hr
Physical	Dimensions	ø95 x 121 mm			
	Weight	1 kg			
Environmental	Operating Temperature	-40°C to +70°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.
**Performance may degrade under unmitigated vibration or significant temperature variation; unit-to-unit variation may occur.
***Over temp. range
Specifications may be changed without notice.