TAKEME2SPACE

NavCube (Dual Transceiver Model)

Technical Specifications



Description:

NavCube is a compact, high-performance multi-GNSS navigation module developed by TM2Space for CubeSats and small satellite platforms requiring reliable position, velocity, and timing information. Supporting GPS L1, GLONASS L1, and Galileo E1 constellations, NavCube provides precise navigation data and high-accuracy Pulse-Per-Second (PPS) timing for orbit determination, mission synchronization, and spacecraft operations. Designed in a PC104-compliant form factor with dual isolated Full-Duplex RS-485 interfaces, the module enables seamless integration with satellite avionics while ensuring robust communication and electrical isolation. Featuring low power consumption, a rugged hard-anodized aluminium enclosure, and qualification through thermal vacuum, vibration, and shock testing, NavCube delivers reliable performance in demanding space environments.

Specifications:

	Parameter	Value
GPS	GNSS type	GPS L1 / GLONASS L1 / GALILEO E1
	Cold Start TTFF	35 seconds (typical) 90 seconds (max)
	Hot start	1 second
	Altitude restriction	None
	Velocity restriction	9.75 km/s
	Max input power at antenna RF input	-10 dBm
	PPS output duty cycle	10% (100ms)
	PPS accuracy	20 ns
	Position accuracy	12 m (3σ)
	Velocity accuracy	0.9 m/s (3σ)
	Measurement update rate	1 Hz default (configurable up to 5 Hz)
Power	Power Consumption (Nominal)	0.6W (dual transceivers) 0.3W (single transceiver) This power consumption is with passive antenna
	Input Voltage	5V
	Input power isolation	Included
Interfaces	Interfaces	2X full duplex RS485
	Signal isolation	Included
Mechanical	Dimensions	90.1mm x 95.6mm x 20.2mm
	Weight	170g
	Form factor	PC104 compliant with stackable connector
	Material	Hard anodised Al 6061 T6
	Temperature Range	-40 C to 85 C
	Storage Temperature	-55C to + 85C
	Connectors	1x 2-pin Molex picolock, 3x 6-pin Molex

		picolock, 1 PC104, 2 SMA
Software	Software Development Kit (SDK)	Custom library provided
Testing & Compliance	T-Vac	2 Cycles with temperature range of +60℃ to -25℃
	Vibration	Random vibration acceptance test levels 20 - 2000 Hz at 4.47grms for 60 seconds
	Shock	100 Hz at 30g 1000 Hz at 1500g 5000 Hz at 1500g

Questions? Queries? Contact us at info@tm2.space