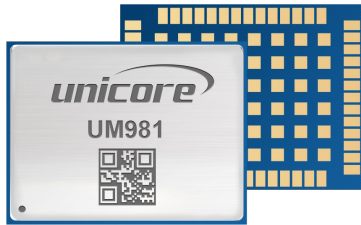


UM981

All-constellation all-frequency
High Precision Affordable
RTK Positioning Module



17.0 x 22.0 x 2.6 mm

Typical Applications



Survey / GIS / Base Station
Deformation Monitoring



UAV / UVS
Robotics / Autonomy



Precision Agriculture
Machine Control

Features / Benefits

- Latest generation GNSS SoC – Nebulas IV™, with integrated RF, baseband, and high precision processing algorithm's
- Small 17 x 22 x 2.6 mm surface-mount package
- All-system multi-frequency RTK engine with advanced "Instantaneous RTK Initialization Technology"
- Low power-consumption of ~480mW
- Supports GPS L1/L2/L5, GLONASS L1/L2/L3, Galileo E1/E5a/E5b, BDS B1/B2I/B3I/B1C/B2a/B2b*, QZSS L1/L2/L5, SBAS
- On-board MEMS sensor for accurate tilt measurement of up to 30° for use in the surveying industry
- "RTK KEEP" technology for extended precision positioning after loss of base-station corrections

UM981 is Unicore's new-generation proprietary high-precision positioning, based on the Nebulas IV™ SoC. The UM981 simultaneously tracks multiple frequencies of all GNSS systems, enabling the module to output high-precision RTK positioning.

Driven by a full-constellation, full frequency RTK engine, an RTK algorithm taking advantage of triple and quad-frequency observables, the UM960 effectively mitigates ionosphere residuals, delivering a fast time to first fix.

With built-in advanced anti-interference technology, the UM981 ensures delivery of reliable and accurate positioning data, even in complex electromagnetic environments.

Featuring extraordinary positioning performance and stability, UM981 is a perfect choice for high precision surveying and positioning applications.

UM981 – General Specifications

Basic Information		Environmental Specifications				Physical Characteristics	
Channels:	1408 channels based on Nebulas IV™	Working Temperature	-40C - +85C		Packaging	54 pin LGA	
Frequency:	GPS: L1C/A, L1C*, L2P(Y), L2C, L5 Galileo: E1, E5a, E5b, E6* Beidou: B1I, B2I, B3I, B1C, B2a, B2b* Glonass: L1, L2, L3 QZSS: L1, L2, L5	Storage Temperature	-55C - +95C		Dimensions	17 x 22 x 2.6 mm	
		Vibration	GJB150.16A-2009 MIL-STD-810F		Weight	1.88+/- 0.03g	
		Shock	GJB150.18A-2009 MIL-STD-810F		Electrical		
		Humidity	95% N/C		Voltage	+3.0 - +3.6 VDC	
					Ripple Voltage	100mV p-p (max)	
					Power Consumption	480mW (typical)	
Performance Specifications						Communication Interface	
Mode	Autonomous	DGPS	RTK	Time Accuracy	20ns	3 x UART (LV TTL)	
Horizontal (RMS)	1.5m	0.4m	0.8cm + 1ppm	Velocity Accuracy	0.03 m/s	1 x I ² C*	
Vertical (RMS)	2.5m	0.8m	1.5cm +1ppm	Cold Start	< 30s	1 x SPI*	
				Initialization Time	< 5s	1 x CAN* (shared with UART3)	
				Initialization Reliability	99.9%	Differential Data: RTCM V3.X	
				Data Update Rate	50 Hz*	Data Format: NMEA 0183, Unicore*	
						<small>Note: Items marked with * are only supported by specific firmware.</small>	