

UM982

FEATURES

- Small compact size 16.0 x 21.0 mm
- Multi-System, multi-frequency high-precision RTK and heading module (SMD packaging)
- Supports GPS L1/L2/L5, Glonass L1/L2, Galileo E1/E5a/E5b, Beidou B1/B2/B3, QZSS L1/L2/L5 and SBAS
- Dual antenna input with support of antenna signal detection
- Supports simultaneous output of heading and positioning at rates of up to 20Hz

PRODUCT BENEFITS

- 1408 channels
- Smallest footprint in the industry
- Centimeter-level RTK positioning
- 0.2° Heading accuracy (1m baseline)
- Low power consumption, ~600mW

EXAMPLE APPLICATIONS

- UAV, UVS, Robotics
- Machine Control
- Precision Agriculture
- Marine Navigation
- Antenna alignment / pointing

GPS / Glonass / Galileo / Beidou / QZSS High Precision RTK and Heading Module

UM982 is Unicore's new-generation proprietary high-precision positioning and heading module, based on the **Nebulas IV** SoC. The **UM982** simultaneously tracks multiple frequencies of all GNSS systems, enabling the module to output high-precision RTK positioning along with dual-antenna heading. The built-in advanced anti-interference technology ensures the **UM982** delivers reliable and accurate positioning data even in complex electromagnetic environments. Featuring extraordinary positioning performance and stability, **UM982** is a perfect choice for high precision navigation and positioning applications.

MULTI-SYSTEM, MULTI-FREQUENCY SIGNAL PROCESSING

UM982 simultaneously tracks signals from GPS, Glonass, Galileo, Beidou and QZSS systems and supports tri-band signals from GPS, Galileo and Beidou and QZSS, delivering "instantaneous" RTK initialization achieving centimeter level positioning accuracy. In areas of partial signal blockage or over long baseline distance, the **UM982** obtains RTK positioning results quickly and reliably.

RTK KEEP

RTK KEEP technology eliminates the positioning errors affected by satellite orbits, clock difference's, ionospheric and tropospheric delays by means of models and parameter estimation after the loss of base station data. Centimeter-level positioning accuracy can be maintained for up to 10 minutes.

INSTANT HEADING TECHNOLOGY

The **INSTANT HEADING** algorithm utilizes synchronized, symmetric, multi-path mitigated observational data to process single-epoch ambiguity to provide instant heading. **INSTANT HEADING** introduces multi-system, multi-frequency, carrier wide and narrow lane integrated algorithms, such as ambiguity search, cycle slip detection / repair and multi-path error. Data from all tracked constellations and ensures the useability and reliability of the heading function.

UM982 TECHNICAL SPECIFICATIONS

PERFORMANCE

Channel	1408 channels, based on Nebulas-IV SoC	Cold start:	<30 s
		Warm start:	<10 s
Frequency	GPS L1 / L2 / L5 Galileo E1 / E5a / E5b Beidou B1I / B2I / B3I GLONASS L1 / L2 QZSS L1 / L2 / L5	Reacquisition time:	<1 s
		Initialization time:	<5 s (typical)
		Initialization reliability:	>99.9%
		Correction Input Protocol:	RTCM V3.x
Autonomous accuracy (RMS):	Horizontal: 1.5m Vertical: 2.5m	Data Output Protocol:	NMEA-0183, Unicore
DGNSS accuracy (RMS):	Horizontal: 0.4m Vertical: 0.8m	Data update rate:	20 Hz
RTK accuracy (RMS):	Horizontal: 0.8cm + 1ppm Vertical: 1.5cm + 1ppm	Time accuracy (RMS):	20 ns
Heading Accuracy (RMS):	0.2° @ 1m baseline	Velocity accuracy (RMS):	0.03 m/s

PHYSICAL

Dimensions	16 x 21 x 2.6 mm
I/O Connectors	48 pin LGA
Weight:	1.82 +/- 0.03g

ENVIRONMENTAL

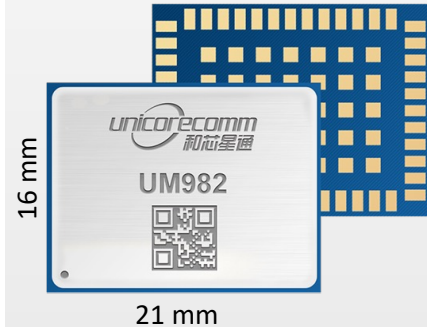
Operating Temperature:	-40° C to +85° C
Storage Temperature:	-55° C to +95° C
Humidity	95% non-condensing
Vibration	GJB150.16-2009, MIL-STD-810F
Shock	GJB150.16-2009, MIL-STD-810F

ELECTRICAL

Voltage	3.3V ~ 5V DC
Ripple Voltage	100 mV p-p (max)
Power Consumption	600mW (typical)

COMMUNICATION INTERFACE

	3 x UART (LV-TTL)
	1 x I2C*
	1 x SPI*
	1 x CAN* (shared with UART3)
	Note: Items market with * are only supported by specific firmware.



Ordering Information

Revised: August, 2022

CONTACT INFORMATION



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