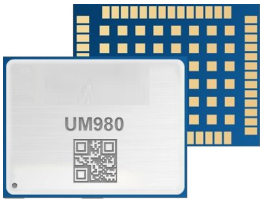
# UM980

GPS/BDS/GLONASS/Galileo/QZSS
All-constellation Multi-frequency
High Precision Positioning
Module




17.0 × 22.0 × 2.6 mm

## Features

- Based on the new generation GNSS SoC - NebulasIV, which integrates RF, baseband, and high precision algorithm
- 17.0 x 22.0 x 2.6mm SMD
- Supports all-constellation multi-frequency on-chip RTK positioning solution
- Supports BDS B1I/B2I/B3I + GPS L1/L2/L5 + GLONASS L1/L2 + Galileo E1/E5a/E5b + QZSS L1/L2/L5 + SBAS
- Adaptive recognition of differential data input in RTCM format

## Applications

- UAV
- Lawn Mower
- Precision Agriculture
- Intelligent Driving

## Brief Introduction

UM980 is Unicore's new-generation proprietary high-precision positioning module. Its antenna can simultaneously track multiple frequencies of all GNSS systems, and the module can perform on-chip RTK positioning. The built-in advanced anti-interference unit ensures the module delivers reliable and accurate positioning data even in complex electromagnetic environment. Featuring the extraordinary positioning performance and stability, UM980 is a perfect choice for high-precision navigation and positioning applications such as UAV, lawn mower, precision agriculture and intelligent driving.

## Physical Characteristics

| | |
|---|---|
| Packaging | 48 pin LGA |
| Dimension | 17.0 × 22.0 × 2.6 mm |
| Weight | 1.82±0.03g |

## Environmental Specifications

| | |
|---|---|
| Working temperature | -40°C~+85°C |
| Storage temperature | -55°C~+95°C |
| Humidity | 95% No condensation |
| Vibration | GJB150.16A-2009, MIL-STD-810F |
| Shock | GJB150.18A-2009, MIL-STD-810F |

## Communication Interfaces

3 × UART (LVTTL)
1 × I2C*
1 × SPI*
1 × CAN* (share the pin with UART3)

Note: Items marked with * are only supported by specific firmware.

## Basic Information

| | |
|---|---|
| Channel | 1408 channels, based on NebulasIV |
| Frequency | BDS: B1I, B2I, B3I |
| | GPS: L1C/A, L2P (Y), L2C, L5 |
| | GLONASS: L1, L2 |
| | Galileo: E1, E5a, E5b |
| | QZSS: L1, L2, L5 |

## Performance Specifications

| | | | |
|---|---|---|---|
| Single point positioning(RMS) | Horizontal: 1.5m | Heading accuracy (RMS) | 0.2°/1m baseline |
| | Vertical: 2.5m | Time accuracy (RMS) | 20 ns |
| DGPS (RMS) | Horizontal: 0.4m | Velocity accuracy (RMS) | 0.03 m/s |
| | Vertical: 0.8m | Cold start | <30s |
| RTK (RMS) | Horizontal: 0.8cm+1ppm | Initialization time | <5s (typical) |
| | Vertical: 1.5cm+1ppm | Initialization reliability | >99.9% |

| Observation accuracy (RMS) | BDS | GPS | GLONASS | Ga |
|---|---|---|---|---|
| B1I/L1 C/A/G1/E1 code | 10cm | 10cm | | 10cm |
| B1I/L1C/A/G1/E1 carrier phase | 1mm | 1mm | 1mm | 1mm |
| B2I/L5/E5a/E5b code | 10cm | 10cm | | 10cm |
| B2I/L5/E5a/E5b carrier phase | 1mm | 1mm | 1mm | 1mm |
| B3I/L2P(Y)/L2C/G2 code | 10cm | | 10cm | 10cm |
| B3I/L2P(Y)/L2C/G2 carrier phase | 1mm | 1mm | | 1mm |

| | |
|---|---|
| Data update rate | Antenna 20 Hz |
| | 20 Hz raw data output |
| Differential data | RTCM V3.X |
| Data format | NMEA-0183, Unicore |



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