# UM220-IV NV

Automotive-grade Multi-GNSS
Navigation and Positioning Module

12.2 × 16.0 x 2.4 mm

Automotive
Grade

## Product Characteristics

» Automotive grade, GNSS SoC conforming to AEC-Q100 standard and production in line with IATF16949 standard

» Excellent navigation and positioning performance, supports single-system standalone positioning and multi-system joint positioning

» Anti-jamming design, which enables the module to work stably under complex electromagnetic environments

» Low power consumption design

» Supports A-GNSS, DGNSS

» Compatible with mainstream GPS modules, cost saving

» Raw observation output (optional)

» SMD, easy for users to produce

## Applications

Vehicle
Navigation

T-BOX

## Ordering Information

Supply at multiples of 500 pieces

## Brief Introduction

UM220-IV NV is a multi-system positioning module developed by Unicore Communications for the vehicle navigation market. It is the fourth generation automotive-grade GNSS module based on Unicore's proprietary GNSS SoC-UC6226, with high integration, low power consumption, and anti-jamming design. UM220-IV NV is suitable for large-scale GNSS applications that require high performance, high reliability, and high quality.

| 13 | GND | GND | 12 |
| 14 | SPI_SDO | RF_IN | 11 |
| 15 | SPI_SDI | GND | 10 |
| 16 | SPI_SCK | VCC_RF | 9 |
| 17 | SPI_CS1 | RSV | 8 |
| | UM220-IV NV | | |
| 18 | SDA | RXD2 | 7 |
| 19 | SCL | TXD2 | 6 |
| 20 | TXD1 | GPIO2 | 5 |
| 21 | RXD1 | EXTINT0 | 4 |
| 22 | V_BCKP | TIME PULSE | 3 |
| 23 | VCC | GPIO3 | 2 |
| 24 | GND | nRESET | 1 |

## Physical Specifications

| Dimensions | 12.2 x 16.0 x 2.4 mm |
| --- | --- |
| Package | 24 pin SMD |
| Weight | 0.8 g |
| Temperature | Operating -40 °C ~ +85 °C |
| | Storage -45 °C ~ +90 °C |

## Electrical Specifications

| Voltage | 3.0 V ~ 3.6 V DC |
| --- | --- |
| LNA | 3.0 V ~ 3.3 V, < 100 mA |
| Power Consumption[4] | 90 mW |

## Interfaces

2 x UART
1 x 1PPS (LVTTL)

## Functional Characteristics

Passive Antenna, Active Antenna,
A-GNSS*, raw observation output

**Note:** The parts marked with * are supported by specific firmware.
1 Concurrent operation of three systems at most, using corresponding command to switch between BDS and GLONASS; 2 Open sky; 3 Typical value, < 30m /s open sky; 4 Open sky, continuous tracking

## Performance Specifications

| Channel | 64 channels, based on UFirebird | | |
| --- | --- | --- | --- |
| Frequency[1] | GPS L1 | | |
| | BDS B1 | | |
| | Galileo E1 | | |
| | GLONASS G1 | | |
| | QZSS | | |
| | SBAS | | |
| Modes | Single-system standalone positioning or multi-system joint positioning | | |
| Time to First Fix (TTFF)[2] | Cold Start: < 28 s | Positioning Accuracy (CEP)[3] | Horizontal: 2.0 m |
| | Hot Start: < 1 s | | Vertical: 3.5 m |
| | Reacquisition: < 1 s | Velocity Accuracy(RMS)[3] | 0.1 m/s |
| | A-GNSS: < 4 s | | |
| Data Update Rate | 1 Hz / 5 Hz | 1PPS | Support |
| Sensitivity | GNSS | | |
| | Tracking | -161 dBm | |
| | Cold Start | -147 dBm | |
| | Hot Start | -154 dBm | |
| | Reacquisition | -157 dBm | |
| Data Format | NMEA 0183, Unicore | | |