

UM220-INS NF

Automotive Grade Multi-GNSS
Integrated Navigation and Positioning
Module



12.2 × 16.0 × 2.6 mm

Product Characteristics

- » Miniature All-in-One design
- » Built-in MEMS device, outputs integrated navigation and positioning results with a single module
- » 100% positioning continuity even in tunnels and underground parking lots
- » In-dash integrated navigation algorithm, supporting odometer pulse / vehicle speed input
- » Supports A-GNSS

Applications



In-Dash
Navigation



High-end Integrated
Navigation

Brief Introduction

UM220-INS NF is an automotive grade GNSS+MEMS module designed for in-dash navigation and high-end navigation. Based on Unicore's proprietary low power GNSS SoC - UC6226, and with the built-in 6-axis MEMS, UM220-INS NF can directly output GNSS+MEMS integrated positioning result. It is most suitable for applications requiring high accuracy, high reliability, and high continuity.

Ordering Information

Supply at multiples of 500 pieces

13	GND	GND	12
14	RSV	RF_IN	11
15	FWD	GND	10
16	RSV	VCC_RF	9
17	RSV	RSV	8
UM220-INS NF			
18	RSV	RXD2	7
19	RSV	TXD2	6
20	TXD1	RSV	5
21	RXD1	WHEEL TICK	4
22	V_BCKP	TIME PULSE	3
23	VCC	RSV	2
24	GND	nRESET	1

Physical Specifications

Dimensions	12.2 × 16.0 x 2.6 mm
Package	24 pin SMD
Temperature	Operating -40 °C ~ +85 °C Storage -45 °C ~ +90 °C

Electrical Specifications

Voltage	3.0 V ~ 3.6 VDC
LNA Feed	3.0 V ~ 3.3 V
Power Consumption ³	90 mW

Functional Ports

2 x UART / 1 x SPEED / 1 x FWD / 1 x 1PPS
Data Format: NMEA 0183
Unicore

NOTE: 1 Concurrent operation of three systems at most, using corresponding command to switch between BDS and GLONASS.
2 Typical value, < 30 m/s open sky
3 Open sky, continuous tracking

Performance Specifications

Channel	64 channels, based on UFirebird		
Frequency ¹	GPS L1 BDS B1 Galileo E1 GLONASS G1 QZSS SBAS		
Positioning Modes	Single-System Positioning Multi-System Positioning	Positioning Accuracy	2.0m CEP (Dual-System Horizontal) < 5% x driving distance (inertial navigation, no GNSS signal)
Time to First Fix (TTFF)	Cold Start: < 30 s Hot Start: < 1 s Reacquisition < 1 s	Velocity Accuracy ² (RMS)	0.01 m/s (GNSS)
Data Update Rate	1 Hz / 5 Hz / 10 Hz	1PPS	Support
Sensitivity	GNSS		
Tracking	-161 dBm		
Acquisition	-147 dBm		
Hot Start	-154 dBm		
Reacquisition	-157 dBm		