

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 to output integrated navigation and positioning results with a single module
- » 100% continuous navigation even in tunnels and underground parking lots
- » GNSS + INS integrated navigation algorithm, supporting odometer pulse input
- » Supports A-GNSS

Applications



Vehicle
Navigation



T-Box

Ordering Information

Supply at multiples of 500 pieces

Brief Introduction

UM220-INS NF is an automotive grade GNSS+MEMS module designed for vehicle navigation. Based on Unicore's proprietary low power consumption 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.

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 × 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

Interfaces

2 x UART(LVTTL)
1 x SPEED
1 x FWD
1 x 1PPS(LVTTL)

NOTE: 1 Simultaneously running three systems at most. Using command to switch between BDS and GLONASS.
2 Typical Value, < 3 0m/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		
Modes	Single-System Standalone Positioning Multi-System Joint Positioning	Positioning Accuracy(CEP)	Horizontal: 2.0 m (Dual-System) < 3% of distance traveled without GNSS signals
Time to First Fix (TTFF)	Cold Start: < 28 s Hot Start: < 1 s Reacquisition: < 1 s	Velocity Accuracy ² (RMS)	0.1 m/s
Data Update Rate	1 Hz / 5 Hz / 10 Hz		
Sensitivity	GNSS Tracking -161 dBm Cold Start -147 dBm Hot Start -154 dBm Reacquisition -157 dBm		
Data Format	NMEA 0183, Unicore		