

# UM621A

## Automotive-Grade Multi-GNSS Dual-Frequency Integrated Positioning Module



16.0 x 12.2 x 2.4 mm



### Features

- » Automotive-grade dual-frequency GNSS+MEMS integrated navigation and positioning module
- » Supports GPS L1 C/A, L5; BDS B1I, B1C, B2a; GLONASS G1; Galileo E1B/C, E5a; NavIC L5\*; QZSS and SBAS
- » Supports multi-system dual-frequency positioning, multi-system single-frequency positioning or single-system standalone positioning
- » Built-in MEMS to output integrated positioning results with a single module
- » Supports odometer pulse input/vehicle speed input
- » Supports the output of integrated positioning results and GNSS-only positioning results through one serial port
- » 100% continuous navigation even in tunnels or underground parking lots
- » GNSS chip qualified according to AEC-Q100; production process conforms to IATF16949

### Applications

- Vehicle Navigation
- T-BOX
- Intelligent Cockpit

### Ordering Information

Supply at multiples of 500 pieces

UM621A is a GNSS dual-frequency + MEMS integrated navigation module developed by Unicore Communications for the automotive market. Based on the proprietary multi-system dual-frequency high-performance SoC-UC6580A, and equipped with a 6-axis MEMS device, the module supports multi-system dual-frequency joint positioning or single-system standalone positioning, and can directly output GNSS+MEMS integrated positioning results, which ensures the continuity of positioning even in tunnels or underground parking lots.

13	GND	GND	12
14	LAN_EN	RF_IN	11
15	FWD	GND	10
16	NC	VCC_RF	9
17	NC	nRESET	8
UM621A			
18	SDA/SPI CS_N	NC	7
19	SCL/SPI CLK	TXD2	6
20	TXD1/SPI MISO	RXD2	5
21	RXD1/SPI MOSI	WHEELTICK	4
22	V_BCKP	TIME PULSE	3
23	VCC	DEL	2
24	GND	nRESET	1

### Physical Specifications

Dimensions	16.0 x 12.2 x 2.4 mm
Package	24 pin, LCC
Operating Temperature	-40 °C ~ +85 °C
Storage Temperature	-40 °C ~ +85 °C

### Electrical Specifications

Voltage	2.7 V ~ 3.6 V DC
LNA	2.7 V ~ 3.3 V, <100 mA
Power Consumption <sup>3</sup>	330 mW

### Interfaces

2 × UART (LVTTL)
1 × I <sup>2</sup> C*
1 × SPI*
1 × SPEED
1 × FWD
1 × 1PPS (LVTTL)

### Functional Characteristics

Passive Antenna, Active Antenna, AGNSS

- Note:**
- \* Supported by specific firmware.
  - 1 Open sky
  - 2 68% at 30 m/s for dynamic operation, open sky
  - 3 Open sky, continuous tracking

### Performance Specifications

Channel	96 channels, based on UFirebird II
	GPS L1C/A, L5
	BDS B1I, B1C, B2a
	GLONASS G1
Frequency	Galileo E1B/C, E5a
	NavIC L5*
	QZSS L1C/A, L1S, L5
	SBAS L1C/A
Positioning Mode	Single-System Standalone Positioning
	Multi-System Joint Positioning
Time to First Fix (TTFF) <sup>1</sup>	Cold Start: < 26 s
	Hot Start: < 2 s
	Reacquisition: < 2 s
Positioning Accuracy(CEP) <sup>1</sup>	Horizontal: 1.5 m (Dual-frequency quad-system, open sky)
Positioning Error of INS only	< 2 % of the distance traveled without GNSS signals
Velocity Accuracy(RMS) <sup>2</sup>	0.05 m/s
1PPS	20 ns
	GNSS
	Tracking -162 dBm
Sensitivity	Cold Start -148 dBm
	Hot Start -156 dBm
	Reacquisition -160 dBm
GNSS Data Update Rate	1 Hz / 5 Hz / 10 Hz
INS Data Update Rate	50 Hz / 100 Hz
Data Format	NMEA 0183, Unicore