

UM621

Industrial Grade Multi-GNSS

Dual-frequency Integrated Positioning Module



Industrial Grade

16.0 x 12.2 x 2.4 mm



- » Industrial grade dual-frequency GNSS+MEMS integrated navigation and positioning module
- » Supports GPS L1 C/A, L5; BDS B1I, B1C*, B2a; GLONASS G1; Galileo E1, 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
- » 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
- » Algorithm adaptable to low-dynamic application scenarios

Applications



Vehicle Navigation



T-BOX



Electric Scooter

Ordering Information

Supply at multiples of 500 pieces

Brief Introduction

UM621 is a GNSS dual-frequency + MEMS integrated navigation module developed by Unicore Communications. Based on the proprietary multi-system dual-frequency high-performance SoC-UC6580I, 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
UM621			
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 SMD
Temperature	Operating -40°C ~ +85 °C Storage -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 ³	168 mW

Interfaces

2 × UART (LVTTL)
1 × I ² C*
1 × SPI*
1 × SPEED
1 × FWD
1 × 1PPS (LVTTL)

Functional Characteristics

Passive Antenna, Active Antenna, AGNSS *
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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 UFirebirdII
Frequency	GPS L1C/A, L5 BDS B1I, B1C*, B2a GLONASS G1 Galileo E1, L5a NavIC L5* QZSS L1, L5 SBAS L1C/A
Positioning Mode	Single-System Standalone Positioning Multi-System Joint Positioning
Time to First Fix (TTFF) ¹	Cold Start: < 26 s Hot Start: < 2 s Reacquisition: < 2 s
Positioning Accuracy(CEP) ²	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) ²	0.05 m/s
1PPS	20 ns
Sensitivity	GNSS Tracking -162 dBm Cold Start -148 dBm Hot Start -158 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