

# UM621N

Automotive Grade Dual-frequency  
Multi-GNSS Integrated Positioning  
Module



16.0 x 12.2 x 2.4mm

## Product Characteristics

- » Automotive grade dual-frequency GNSS+MEMS integrated navigation and positioning module
- » Supports BDS B1I/B1C\*/B2a, GPS L1/L5, GLONASS G1, Galileo E1/E5a, NavIC (IRNSS L5\*)
- » Supports simultaneous operation of four-system L1+L5 or L1+L2
- » Supports the output of raw observations
- » Conforms to AEC-Q100 standard and IATF16949 standard
- » Built-in MEMS, outputting integrated positioning results with a single module
- » Supports the input of odometer pulse/vehicle speed
- » 100% continuous positioning even in tunnels or underground parking lots

## Applications



In-Dash Vehicle  
Navigation



T-BOX



Vehicle  
Navigation

## Brief Introduction

UM621N is a GNSS dual-frequency+MEMS integrated navigation module developed by Unicore Communications for the automotive market. It is based on the proprietary multi-system dual-frequency high-performance SoC - UC6580A, and is 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.

## Ordering Information

Supply at multiples of 500 pieces

UM621N			
12	GND	GND	22
13	LANLEN	RF_IN	23
14	FWD	GND	24
15	GEOF_STAT	VCC_RF	25
16	ENT	HRESET	26
17	SDA/SPI_CS_N	NC	27
18	SCL/SPI_CLK	TRIG	28
19	TRIGL/SPI_MISO	TRIG2	29
20	TRIGR/SPI_MOSI	WHEELTICK	30
21	V_BACKP	TIME_PULSE	31
22	VCC	DEL	32
23	GND	HRESET	33

## Functional Ports

2×UART / 1×I2C / 1×SPI / 1×SPEED / 1×FWD  
1×PPS  
Data Format NMEA 0183 (Compatible with BDS)

## Physical Specifications

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

## Electrical Specifications

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

## Functional Characteristics

Passive Antenna, Active Antenna,  
AGNSS \*

**NOTE:** \* Supported by specific firmware.  
1 Open sky  
2 Typical value, <30m/s open sky  
3 Open sky, continuous tracking

## Performance Specifications

Channel	96 channels, based on UFirebirdIII
Frequency	BDS B1I/B1C*/B2a GPS L1C/A/L1C*/L5 GLONASS G1 Galileo E1/E5a NAVIC L5* QZSS L1/L5 SBAS
Modes	Single-System Positioning Multi-System Positioning
Time to First Fix (TTFF) <sup>1</sup>	Cold Start : <30s Hot Start : <2s Re-acquisition : <2s
Positioning Accuracy <sup>2</sup>	1.5m CEP(Dual-frequency four-system horizontal, open sky)
Positioning Error of INS only	3D gyro error + 3D accelerometer error + speed signal error 2% × driving distance
GNSS Data Update Rate	1Hz/10Hz/20Hz*
INS Data Update Rate	100Hz
Data Format	NMEA 0183, Unicore Protocol
Velocity Accuracy(RMS)	0.1m/s (GNSS)
1PPS	20ns
Sensitivity	GNSS
Tracking	-165dBm
Acquisition	-148dBm
Hot Start	-158dBm
Reacquisition	-160dBm