

# UM620

Industrial Grade Multi-GNSS  
Dual-frequency Positioning  
Module



12.2 × 16.0 × 2.4 mm



## Product Characteristics

- » Industrial grade dual-frequency 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
- » Anti-jamming design to ensure the module working stably in complex electromagnetic environments
- » Algorithm adaptable to low-dynamic application scenarios

## Applications

- Vehicle Navigation
- T-BOX
- Intelligent Cockpit

## Ordering Information

Supply at multiples of 500 pieces

## Brief Introduction

UM620 is an industrial-grade GNSS dual-frequency navigation module developed by Unicore Communications. Based on the proprietary multi-system dual-frequency high-performance SoC-UC6580I, the module supports multi-system dual-frequency positioning, multi-system single-frequency positioning, or single-system standalone positioning, ensuring high positioning accuracy even in complex environments such as multi-path surroundings.

| UM620 |               |            |    |
|-------|---------------|------------|----|
| 13    | GND           | GND        | 12 |
| 14    | LAN_EN        | RF_IN      | 11 |
| 15    | FWD           | GND        | 10 |
| 16    | GEOF_STAT     | VCC_RF     | 9  |
| 17    | EINT          | nRESET     | 8  |
| 18    | SDA/SPI CS_N  | NC         | 7  |
| 19    | SCL/SPI CLK   | TXD2       | 6  |
| 20    | TXD1/SPI MISO | RXD2       | 5  |
| 21    | RXD1/SPI MOSI | NC         | 4  |
| 22    | V_BCKP        | TIME PULSE | 3  |
| 23    | VCC           | DEL        | 2  |
| 24    | GND           | nRESET     | 1  |

## Physical Specifications

|             |  |
|-------------|--|
| Dimensions  | 12.2 × 16.0 × 2.4 mm                                 |
| Package     | 24 pin, SMD  |
| Temperature | Operating -40 °C ~ +85 °C<br>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 <sup>3</sup> | 150 mW                  |

## Interfaces

- 2 × UART (LVTTL)
- 1 × I<sup>2</sup>C\*
- 1 × SPI\*
- 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 UFirebirdII  |
| Frequency                               | GPS L1C/A, L5<br>BDS B1I, B1C*, B2a<br>GLONASS G1<br>Galileo E1, E5a<br>NavIC L5*<br>QZSS L1, L5<br>SBAS L1C/A |
| Positioning Mode                        | Single-System Standalone Positioning<br>Multi-System Joint Positioning   |
| Time to First Fix (TTFF) <sup>1</sup>   | Cold Start: < 26 s<br>Hot Start: < 2 s<br>Reacquisition: < 2 s   |
| Positioning Accuracy (CEP) <sup>2</sup> | Horizontal: 1.5 m (Dual-frequency quad-system)   |
| Velocity Accuracy (RMS) <sup>2</sup>    | 0.05 m/s   |
| 1PPS                                    | 20 ns  |
| Sensitivity                             | GNSS<br>Tracking -162 dBm<br>Cold Start -148 dBm<br>Hot Start -158 dBm<br>Reacquisition -160 dBm               |
| Data Update Rate                        | 1 Hz / 5 Hz* / 10 Hz*  |
| Data Format                             | NMEA 0183, Unicore   |