UM220 - T

BDS/GPS
Dual-system Timing Module

Brief Introduction

UM220-T is a BDS/GPS dual-system timing module designed for Precise Timing application areas such as Telecommunication, Electrical Power, and Financing. This module is developed by Unicore based on its multi-system, multi-frequency, high performance GNSS SoC – (Nebulas™)[1]. With optimized software algorithm, static timing support, and single satellite timing, UM220-T provides high integration and low power consumption ablity, it is the best choice for large volume BDS Timing applications.

■ Precise, Stable and High Reliable Timing

With advanced multi-path mitigation technology and optimized algorithm, UM220-T provides precise 1PPS output. With the innovative open framework of multi-system interoperability, UM220-T insures all available satellites of different system to participate in the positioning and Timing, thus guarantees the availability and reliability of long time continuous timing. Single-Satellite-Timing enables the precise and stable 1PPS output even under the condition of single visible satellite.

■ Event Mark

In support of Event Mark, offers the best convenience to system control and Integration development.

■ Rich Timing Modes, Flexible Configuration

UM220-T supports both static mode (user input position) and position timing mode, and is available for both single system and multi system timing. It is much flexible and easy for users to configure the timing mode and system. Timing reference can be consistent with UTC, BDS, and GPS time according to application requirements.

■ Easy to Integrate

UM220 is compact in structure, small in size, and is compatible with main stream GNSS timing board solutions for convenient application development. The SMD surface-mount technology makes it easy for production.

Application Fields

- Electrical Power Time Synchronization
- Tele Communication Base Station Timing
- Financial network synchronization

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Product Characteristics

- Small size (40×30x3.7mm)
- Ultra low power (350mW)
- Support BDS/GPS in Single chip, able to send NMEA data without Auxiliary CPU
- Support Single-Satellite Timing
- Support Static Timing and Position Timing
- Advanced technology of multi-path mitigation
- Support single system independent positioning and multi-system interoperation
- Support Event Mark
- SMD surface-mount technology makes it easy for users production

[1] Unicore Nebulas™ (UC260) is multi-system multi-frequency high performance SoC chip, which supports all existing GNSS, including BDS B1/B2/B3, GPS L1/L2/L5, GLONASS L1/L2 and Galileo E1/E5a/E5b.

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Technical Specifications

Performance Specifications

Channel	Based on 192-Channel SoC - Nebulas
Frequency	BDS B1 GPS L1
Timing Modes	Position (Single System Positioning and Multi-System Positioning) Static (User Input Position) Support Single Satellite Timing
Timing Accuracy	1PPS 20ns (1σ)
Timing Reference	Customizable 1PPS timing reference Support UTC, BDS, GPS time

Time to First Fix (TTFF)	Cold Start : 35s Hot Start : 1s Recapture : <1s
Positioning Accuracy(RMS)	3m, 3D
Velocity Accuracy(RMS)	0.1m/s
1PPS *	20ns
Update Rate	1Hz (can update higher)
Data Output*	NMEA 0183 (Customizable)

Physical Specifications

Dimensions	40 x 30 x 3.7mm
Antenna input	Pin 2 Input
Package	60 pin SMD

Temperature	Operating: -40°C~+85°C Storage: -45°C~+90°C
Vibration	GB2423.10-1995

Electrical Specifications

Voltage	3.0 ~ 3.6 VDC
LNA	2.85V, 100mA / 3.3V，100mA
Power Consumption*	350mW

1PPS	Costomizable Rising/Falling edge Rising edge time≤10ns Driving capability>1mA

Functional Ports

3 x UART(TTL)	1 x I²C
1 x Event	2 x SPI
1 x 1PPS	

Note: Part marked with * is customizable

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