

UT986

GNSS All-constellation Multi-frequency
High Precision Timing Module



17.0 × 22.4 × 2.4 mm



Features

- » Based on the new generation GNSS SoC - NebulasIV, which integrates RF, baseband, and high precision algorithm
- » New-generation GNSS all-constellation multi-frequency high-precision timing module
- » Nanosecond-level PPS accuracy
- » Excellent anti-jamming ability, tracking different signals by different RF channels
- » Supports interference detection and spoofing detection
- » Supports single-satellite positioning and timing

Applications



Telecom Base
Station Timing



Electrical Power Grid Timing



Network Time Synchronization

UT986 is Unicore's new-generation proprietary GNSS high-precision timing module working on all systems and multiple frequencies. The module integrates filters and linear amplifiers, providing optimized RF structure and interference suppression capability. Together with the adaptive anti-interference technology and multi-path mitigation algorithm, it supports interference detection and spoofing detection, ensuring that the module continuously provides excellent performance even in complex electromagnetic environments. UT986 delivers nanosecond-level PPS accuracy and allows multiple timing modes, including fixed-location timing, optimized-location timing, and positioning timing, enabling exceptional timing accuracy in complex signal environment.

Physical Specifications

Packaging	28 pin LCC
Dimension	17.0 × 22.4 × 2.4 mm
Weight	1.9 g

Power Supply

Voltage	3.0 V ~ 3.6 V DC
Power consumption	700 mW (typical)

Environmental Specifications

Working temperature	-40 °C ~ +85 °C
Storage temperature	-40 °C ~ +95 °C

I/O Interface

UART x 2	
LVTTTL level, Baud rate	9600 bps ~ 921600 bps

RF Input

Input impedance	50 Ω
Antenna gain	5 dB ~ 35 dB

Performance Specifications

Channel	1408 channels, based on NebulasIV				
Frequency	GPS L1C/A, L2C, L5				
	BDS B1I, B1C, B2a				
	GLONASS G1				
	Galileo E1, E5a, E5b				
Cold start	< 30 s				
Reacquisition	< 3 s				
Positioning accuracy (CEP)	1.5 m (dual system horizontal, open sky)				
	2.5 m (dual system vertical, open sky)				
Velocity accuracy (RMS)	0.03 m/s (dual system horizontal, open sky)				
Observation accuracy (RMS)	BDS	GPS	GLONASS	Galileo	
	Cold start	-145 dBm	-147 dBm	-145 dBm	-145 dBm
	Tracking	-160 dBm	-161 dBm	-155 dBm	-155 dBm
1PPS accuracy	< 5 ns (1σ)				
Data update rate	1 Hz, Up to 10 Hz				
Differential Data	RTCM V3.X				
Data Format	NMEA-0183, Unicore				