

# UT986

GNSS All-constellation Multi-frequency  
High-accuracy Timing Module



17.0 × 22.4 × 2.4 mm



## Features

- » Based on Unicore's proprietary GNSS SoC NebulasIV that integrates RF, baseband and high-precision algorithm
- » New-generation GNSS all-constellation multi-frequency high-accuracy timing module
- » Nanosecond-level PPS accuracy, with time quality indicator output
- » Excellent anti-jamming capability, 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-accuracy timing module working on all systems and multiple frequencies. The module integrates filters and linear amplifiers, providing optimized RF structure and having interference suppression capability. Combining 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

Operating Temperature	-40 °C ~ +85 °C
Storage Temperature	-40 °C ~ +95 °C

## I/O Interface

2 × UART LVTTTL, baud rate: 9600 bps to 921600 bps  
1 × PPS (LVTTTL)

## 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			
TTFF	QZSS LC/A, L2C, L5			
	Cold Start < 30 s			
	Reacquisition < 3 s			
Positioning Accuracy (CEP)	Horizontal: 1.5 m (dual system, open sky)			
	Vertical: 2.5 m (dual system, open sky)			
Velocity Accuracy (RMS)	0.03 m/s (dual system horizontal, open sky)			
Sensitivity (RMS)	BDS	GPS	GLONASS	Galileo
	Cold Start	-145 dBm	-147 dBm	-145 dBm
	Tracking	-160 dBm	-161 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			