

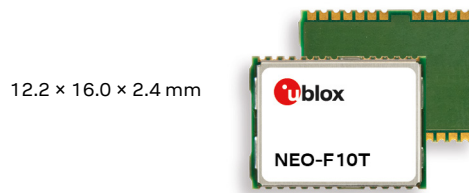
NEO-F10T module



u-blox F10 high accuracy timing module

Compact dual-band GNSS receiver with nanosecond-level timing accuracy

- Meets 5G time synchronization requirements on a global scale
- Unaffected by ionospheric errors
- Combines accurate timing with low power consumption
- Built-in security for highest robustness against malicious attacks
- Industry-standard compact NEO form factor – easy upgrade from NEO-M8T



Product description

The NEO-F10T timing module provides nanosecond-level timing accuracy to the most demanding infrastructure applications.

Thanks to the module's dual-band functionality, it can provide excellent timing accuracy without the need of an external GNSS correction service. Additionally, when within the operational area of a Satellite Based Augmentation System (SBAS), NEO-F10T offers the possibility to improve the timing performance by using the ionospheric corrections provided by the SBAS system.

As NEO-F10T supports all four global satellite constellations, it is ideal for global deployments with single HW SKU. The NEO-F10T module supports the L1/L5/E5a configuration.

NEO-F10T includes advanced security features such as secure boot, secure interfaces, and T-RAIM to provide the highest level timing integrity.

The module has a single RF input for all the GNSS bands and dual SAW filters for exceptional signal selectivity and out-of-band attenuation.

NEO-F10T is designed to meet the most stringent timing synchronization requirements in 5G mobile networks on a global scale. By significantly reducing the time error of the primary source of cellular network synchronization, the NEO-F10T module will help operators maximize the performance of their networks and so optimize the return on their investment in 5G communications.

u-blox modules are manufactured in IATF 16949 certified sites and are fully tested on a system level. Qualification tests are performed as stipulated in the ISO16750 standard: "Road vehicles – Environmental conditions and testing for electrical and electronic equipment".

NEO-F10T

	NEO-F10T
Grade	
Automotive	
Professional	•
Standard	
GNSS	
GPS / QZSS	•
GLONASS	•
Galileo	•
BeiDou	•
NavIC	•
Multi-band	L1/L5/E5a
Interfaces	
UART	1
Features	
Programmable (Flash)	•
Carrier phase output	•
Additional SAW	•
RTC crystal	•
Oscillator	T
Survey-in and fixed mode	•
Time pulse output	1
Time mark input	1
Power supply	
2.7 V – 3.6 V	•

T = TCXO

NEO-F10T module



Features

Receiver type	u-blox F10 engine GPS L1C/A, L5 GAL E1B/C, E5a QZSS L1C/A, L5 NavIC L5 SBAS L1C/A: WAAS, EGNOS, L1Sb, GAGAN	GLO L10F BDS B1C, B2a
Nav. update rate ¹	up to 10 Hz	
Position accuracy ²	Standalone	2.0 m CEP
Acquisition	Cold starts	26 s
	Aided starts	2 s
	Reacquisition	1 s
Sensitivity	Tracking and Nav.	-167 dBm
	Reacquisition	-160 dBm
	Hot starts	-157 dBm
	Cold starts	-148 dBm
Assistance	AssistNow Online OMA SUPL and 3GPP compliant	
Oscillator	TCXO	
RTC crystal	Built-in	
Anti-jamming	Active CW detection and removal Dual onboard band pass filters	
Anti-spoofing	Advanced anti-spoofing algorithms	
Security	Secure boot Secure firmware update Configuration lock	
Memory	Flash	

- 1 The highest navigation rate can limit the number of supported constellations
2 Depends on atmospheric conditions, GNSS antenna, multipath conditions, satellite visibility, and geometry

Features - Timing

Timing accuracy	10 ns (1-sigma, clear sky, dual-band mode)
Time pulse frequency	0.25Hz – 25 MHz
Time pulse jitter	±8 ns
Time mark resolution	16 ns
Integrity reports	T-RAIM active, phase uncertainty Time pulse rate/duty-cycle, inter-constellation biases
Survey-in period	Configurable

Features - Raw data

Measurement data	Carrier phase, code phase and pseudo-range, Doppler on all signals
Message data	GPS, GLONASS, BeiDou, Galileo, QZSS, NavIC, SBAS

Package

24-pin LCC (Leadless Chip Carrier)
12.2 x 16.0 x 2.4 mm

Environmental data, quality and reliability

Operating temp. -40 °C to +85 °C
Storage temp. -40 °C to +85 °C

RoHS compliant (2015/863/EU)

ETSI-RED compliant

Qualification according to ISO 16750

Manufactured and fully tested in IATF 16949 certified production sites

High vibration and shock resistance

Electrical data

Supply voltage 2.7 V to 3.6 V
Power consumption 19 mA @ 3.0 V (continuous)
Backup supply 1.65 V to 3.6 V

Interfaces

Serial interfaces 1 UART
Protocols NMEA, UBX binary
Time pulse output 1
Time mark input 1

Support products

u-blox support products provide reference design, and allow efficient integration and evaluation of u-blox positioning technology.

ANN-MB1 L1/L5 multi-band active GNSS antenna

Product variants

NEO-F10T-00B u-blox F10 high accuracy timing module, with L1/L5/E5a bands

Further information

For contact information, see www.u-blox.com/contact-u-blox.
For more product details and ordering information, see the product data sheet.

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