Product summary

NEO-F10N module

u-blox F10 standard precision GNSS module

Standard

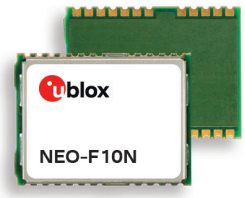
Professional

Automotive

L1/L5 dual-band GNSS receiver for meter-level accuracy in urban environments

- Effective multipath mitigation to boost urban accuracy
- Exceptional RF interference immunity with co-located cellular modems
- Proven excellent performance, even with small antennas
- Upgradeable firmware for future-proof designs
- Pin-compatible with previous NEO products for easy migration

12.2 × 16.0 × 2.4 mm



Product description

The NEO-F10N is built on the u-blox F10 dual-band GNSS technology using L1/L5 GNSS bands, which provides solid meter-level position accuracy in urban areas.

With its proprietary dual-band multipath mitigation technology, u-blox F10 uses the best signals from the L1/L5 bands to achieve a significantly better position accuracy in urban environments than with the L1 band only. Applications like vehicle tracking and micromobility benefit significantly.

NEO-F10N offers a single antenna input. Two SAW filters in series with an LNA between them provide high robustness against RF interference from co-located cellular modems. The firmware is upgradeable and is highly configurable to support many different use cases.

NEO-F10N is pin-to-pin compatible with previous u-blox generations, which saves designers time and cost when upgrading their designs.

u-blox modules are manufactured in IATF 16949 certified sites and are fully tested on a system level.

	NEO-F10N-00B-00	NEO-F10N-00B-20
Grade		
Automotive		
Professional	•	•
Standard		
GNSS		
GPS / QZSS	•	•
Galileo	•	•
BeiDou	•	•
NavIC	•	•
Bands	L1/L5/E5a/B2a	L1/L5/E5a/B2a
Interfaces		
UART	1	1
Features		
Upgradeable firmware	•	•
Carrier phase output		•
Additional SAW	•	•
Additional LNA	•	•
RTC crystal	•	•
Oscillator	T	T
Time pulse output	1	1
Power supply		
2.7 V – 3.6 V	•	•

T = TCXO

NEO-F10N module

Features

Receiver type	u-blox F10 engine GPS L1C/A, L5 QZSS L1C/A, L1S, L1Sb, L5 GAL E1B/C, E5a BDS B1C, B2a NavIC L5 SBAS L1C/A, BDSBAS B1C
Nav. update rate[1]	up to 10 Hz
Horizontal position accuracy[2]	1.0 m CEP (with SBAS) 1.5 m CEP (without SBAS)
Acquisition	Cold start 28 s Aided start 2 s Hot start 2 s
Sensitivity	Tracking and nav. -167 dBm Reacquisition -159 dBm Cold start -148 dBm Hot start -159 dBm
Oscillator	TCXO
RTC crystal	Built-in

Tracking features

Odometer	Measures traveled distance with support for different user profiles
Protection level	Real-time position accuracy estimate with 95% confidence

Security features

Signal integrity	RF interference & jamming detection and reporting Spoofing detection and reporting
Device integrity	Secure boot of firmware downloaded from host or flash Receiver configuration lock by command
Secure interface	Signed UBX messages (HMAC-SHA256) JTAG debug interface disabled by default

Compatible u-blox location services

AssistNow	Achieves premium performance in challenging IoT environments

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

Package

24-pin LCC (Leadless Chip Carrier)
12.2 x 16.0 x 2.4 mm, 1.0 g

Environmental data, quality, and reliability

Operating temp.	–40 °C to +85 °C
Storage temp.	–40 °C to +85 °C
Environmental grade	2015/863/EU RoHS-3
EMC (electromagnetic compatibility)	2014/53/EU RED
Environmental testing	Qualified according to u-blox qualification policy, based on a subset of AEC-Q104
Quality management	Manufactured and fully tested in IATF 16949 certified production sites

Electrical data

Supply voltage	2.7 V to 3.6 V
Power consumption	63 mW (3 GNSS)
Backup supply	1.65 V to 3.6 V

Interfaces

Serial interfaces	1 UART
Digital I/O	Configurable timepulse 1 EXTINT input for Wakeup
Time pulse output	Configurable: 0.25 Hz to 10 MHz
Raw data output	Code phase data, carrier phase data
Supported antennas	Active and passive
Protocols	NMEA, UBX binary

Support products

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

ANN-MB5	L1/L5 multi-band active GNSS antenna
EVK-F10N	u-blox F10 GNSS evaluation kit for NEO-F10N
u-center 2	Highly intuitive software for GNSS performance evaluation

Product variants

NEO-F10N-00B-00	u-blox F10 GNSS LCC module, upgradeable firmware in flash memory, SAW filter, LNA
NEO-F10N-00B-20	u-blox F10 GNSS LCC module, upgradeable firmware in flash memory, SAW filter, LNA, carrier phase raw data

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.