

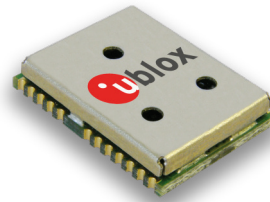
# NEO-6 module series

## u-blox 6 ROM-based GPS receivers

### Objective Specification

#### Product description

The NEO-6 module series brings the high performance of the u-blox6 positioning engine to the miniature NEO form factor. These receivers combine a high level of integration capability with flexible connectivity options in a small package. This makes them perfectly suited for mass-market end products with strict size and cost requirements.



#### Highlights

- u-blox6 position engine with over 2 million effective correlators featuring acquisition down to 1 s, -147 dBm coldstart sensitivity and 5 Hz update rate
- Intelligent, user configurable power management for radically lower power consumption
- Supports u-blox' **AssistNow** Online and **AssistNow** Offline A-GPS services and is OMA SUPL compliant
- 1.8V supply voltage for low power consumption (NEO-6G)
- UART, USB, DDC (I<sup>2</sup>C compliant) and SPI interfaces
- Miniature 16.0 x 12.2 x 2.4 mm package
- Pin compatible with NEO-5G, NEO-5Q and NEO-5M
- RoHS compliant

#### Features

Series	Power	Memory	Function					Antenna		Input / Output						
	Voltage range [V]	Programmable (Flash) FW update	Power Save mode	Capture & Process	TCXO	Dead Reckoning	Raw data	Precision Timing	Antenna supply	Antenna supervisor	UART	USB	SPI	DDC (I <sup>2</sup> C compliant)	Reset input	Configuration pin
<b>NEO-6G</b>	1.8		•		•						1	1	1	1		3
<b>NEO-6M</b>	2.7 - 3.6		•								1	1		1		3
<b>NEO-6Q</b>	2.7 - 3.6		•		•						1	1	1	1		3

## Mechanical data



Dimensions  
16.0 x 12.2 x 2.4 mm

Weight  
1.6 g

## Electrical data

Power supply	2.7 to 3.6V (NEO-6Q/6M) 1.8 V (NEO-6G)
Power consumption	115 mW @ 3.0V (Continuous, Max Perf.) 51 mW @ 3.0V (Power Save mode @1 Hz) 72 mW @ 1.8V (Continuous, Max Perf.) 32 mW @ 1.8V (Power Save mode @1 Hz)
Backup power	1.4V to 3.6V, 25 $\mu$ A
Antenna type	Active and passive

## Interfaces

Serial interfaces	1 UART 1 USB V2.0 full speed 12 Mbit/s 1 DDC (I <sup>2</sup> C compliant) 1 SPI (NEO-6G/Q)
Digital I/O	Configurable time pulse 1 EXTINT input
Serial and I/O	Voltages 2.7 – 3.6 V
Protocols	NMEA, UBX binary

## Ordering information

NEO-6G-0	ROM-based u-blox 6 GPS Module 1.8 V with TCXO
NEO-6M-0	ROM-based u-blox 6 GPS Module with crystal
NEO-6Q-0	ROM-based u-blox 6 GPS Module with TCXO

Available as samples and tape on reel (250 pieces)

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## Receiver performance data

Receiver type	50-channel u-blox5 engine GPS L1 C/A code SBAS: WAAS, EGNOS, MSAS, GAGAN	
Max. update rate	5 Hz	
Accuracy <sup>1</sup>	Position	2.5 m CEP
	SBAS	2.0 m CEP
Acquisition <sup>1</sup>		NEO-6G/Q NEO-6M
	Cold starts:	28 s 32 s
	Warm starts:	28 s 32 s
	Aided starts <sup>2</sup> :	1 s < 3 s
	Hot starts:	1 s 1 s
Sensitivity <sup>3</sup>		NEO-6G/Q NEO-6M
	Tracking:	-160 dBm -160 dBm
	Reacquisition:	-160 dBm -160 dBm
	Cold starts:	-147 dBm -146 dBm
Timing accuracy	RMS	30 ns
	99%	< 60 ns
	Granularity	21 ns
Time pulse	Configurable	0.25 Hz to 1 kHz
A-GPS	Supports AssistNow Online and AssistNow Offline, OMA SUPL compliant	
Operational limits	Velocity:	500 m/s (972 knots)
	Altitude:	50,000 m
Operating temp.	-40° C to 85° C	
Storage temp.	-40° C to 85° C	

<sup>1</sup> All SV @ -130 dBm

<sup>2</sup> Dependent on aiding data connection speed and latency

<sup>3</sup> Demonstrated with a good active antenna

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