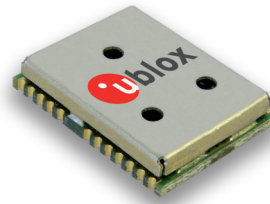


# NEO-5 module series

## u-blox 5 ROM-based GPS receivers

### Product description

The NEO-5 module series brings the high performance of the u-blox5 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.



16.0 x 12.2 mm

### Highlights

- 50-channel u-blox5 engine with over 1 million effective correlators
- < 1 second Time-To-First-Fix for hot and aided starts
- -160 dBm SuperSense® acquisition and tracking sensitivity
- Accelerated startup at weak signals for modules with KickStart feature
- Supports AssistNow Online and AssistNow Offline A-GPS services; OMA SUPL compliant
- High immunity to jamming
- Up to 4 Hz position update rate
- Miniature 16.0 x 12.2 mm package
- UART, USB, DDC and SPI\* interfaces
- 1.8V supply voltage for low power consumption (NEO-5D/5G)
- RoHS compliant

\* Planned for NEO-5Q/5G

### Features

Series	Power	Size	Memory	Function	Antenna	Input / Output
	Voltage range [V]	Thickness [mm]	Programmable (Flash) FW update	Power Save mode KickStart Dead Reckoning Raw data Precision Timing	Antenna supply Antenna supervisor	UART USB SPI DDC (I <sup>2</sup> C compliant) Reset input Configuration pin
NEO-5M	2.7 - 3.6	2.4		P		1 1 1 1
NEO-5Q	2.7 - 3.6	2.4		P •		1 1 P 1 3
NEO-5D	1.8	2.4		P		1 1 1 1
NEO-5G	1.8	2.4		P •		1 1 P 1 3

P = Planned

## Mechanical data



Dimensions 16.0 mm x 12.2 mm

Weight 1.6 g

## Electrical data

Power supply	1.8 V (NEO-5D / NEO-5G) 2.7 to 3.6 V (NEO-5M / NEO-5Q)
Power consumption	77 mW <sup>1</sup> @ 1.8 V Eco mode 81 mW <sup>1</sup> @ 1.8 V Max.Performance mode  129 mW <sup>2</sup> @ 3.0 V Eco mode 135 mW <sup>2</sup> @ 3.0 V Max.Performance mode
Backup power	1.4 V to 3.6 V, 25 µA
Antenna type	Active and passive

<sup>1</sup> NEO-5D

<sup>2</sup> NEO-5M

## Support Products

u-blox 5 Evaluation Kits

EVK-5H:	with KickStart suitable for NEO-5G / NEO-5Q
EVK-5P:	with SuperSense <sup>®</sup> suitable for NEO-5D / NEO-5M

## Ordering information

NEO-5D-0	ROM-based u-blox 5 GPS Module, 1.8V
NEO-5G-0	ROM-based u-blox 5 GPS Module with KickStart, 1.8V
NEO-5M-0	ROM-based u-blox 5 GPS Module, 3V
NEO-5Q-0	ROM-based u-blox 5 GPS Module with KickStart, 3V

Available as samples and tape on reel (250 pieces)

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## Interfaces

Serial interfaces	1 UART 1 USB V2.0 full speed 12 Mbit/s 1 DDC (I <sup>2</sup> C compliant) 1 SPI (planned for NEO-5Q / NEO-5G)
Digital I/O	Configurable time pulse 1 EXTINT input
Serial and I/O Voltages	1.75 – 2.0 V (NEO-5Q / NEO-5G) 2.7 – 3.6 V (NEO-5M / NEO-5Q)
Protocols	NMEA, UBX binary

## Receiver performance data

Receiver type	50-channel u-blox 5 engine GPS L1 C/A code SBAS: WAAS, EGNOS, MSAS, GAGAN		
Max. update rate	4 Hz		
Accuracy <sup>3</sup>	Position	2.5 m CEP	
	SBAS	2.0 m CEP	
Acquisition <sup>3</sup>		NEO-5G/5Q	NEO-5D/5M
	Cold starts:	29 s	32 s
	Warm starts:	29 s	32 s
	Aided starts <sup>4</sup> :	<1 s	<1 s
	Hot starts:	<1 s	<3 s
Sensitivity <sup>5</sup>		NEO-5G/5Q	NEO-5D/5M
	Tracking:	-160 dBm	-160 dBm
	Reacquisition:	-160 dBm	-160 dBm
	Cold starts:	-144 dBm	-143 dBm
Timing accuracy	RMS	30 ns	
	99%	< 60 ns	
	Granularity	21 ns	
Time pulse	Configurable	0.25 to 1000 Hz	
A-GPS	Supports AssistNow Online and AssistNow Offline, OMA SUPL compliant		
Operational limits <sup>6</sup>	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>3</sup> All SV @ -130 dBm

<sup>4</sup> Dependent on aiding data connection speed and latency

<sup>5</sup> Demonstrated with a good active antenna

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