



u-blox GNSS product overview

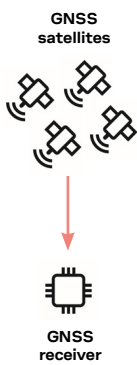
Optimized cost and performance combined with easy integration

Product diversity for all kinds of applications

u-blox is a leading provider in GNSS solutions that are tailored for every customer's needs. Because we use our own silicon, we can offer controlled quality, high performance, quick support, and stable product life cycles.

Our positioning modules, SiPs, chips, and smart antenna modules set the benchmark in performance and cost effectiveness, with quick delivery of accurate position data. Our wide portfolio includes standard precision, high precision, precise timing, and dead reckoning solutions. We are continually making innovative advancements in accuracy, anti-spoofing, power efficiency, small size, and low cost.

Technologies

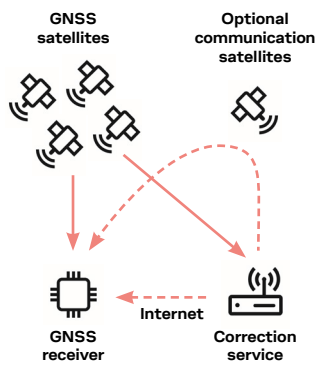


Standard precision (SPG)

Meter-level accuracy and low power consumption in cost-efficient products that are suitable for most needs

Application areas:

- Asset tracking
- Telematics
- Navigation
- Wearables and camera



High precision (HPG)

Sub-meter to centimeter-level accuracy using u-blox PointPerfect and third party correction services

Application areas:

- Unmanned vehicles
- Navigation
- Automotive

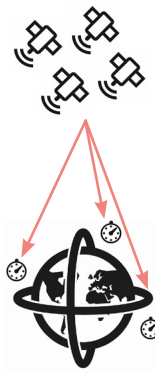


Dead Reckoning (DR)

100% positioning coverage even in parking garages, tunnels, and urban canyons

Application areas:

- Road-vehicle navigation
- Autonomous driving



Timing & Frequency

Accurate clock and frequency generation based on satellite positioning technology

Application areas:

- Wireless communication
- Industrial
- Power distribution
- Financial applications

u-blox IoT Location-as-a-Service

Location-as-a-Service ensures reliable, fast position information and delivers accurate assistance and error correction data for IoT devices, even in constrained and challenging environments. GNSS users expect instant position information, which is not often possible under adverse signal conditions; therefore, location, assistance, and correction services become essential functionalities. u-blox offers smart solutions to these challenges:



AssistNow™ provides real-time online Assisted-GNSS backed by our warranty and support. It accelerates GNSS performance and lowers power consumption. Integration is easy.



PointPerfect™ brings high-precision GNSS to mass market by delivering sub-10 cm accuracy positioning within seconds combined with flexible service plans and an easy-to-use delivery platform.



CellLocate® provides a best-in-class mobile network-based location service with global availability. This end-to-end solution is proven, scalable, and ready to virtually eliminate any "no position scenario".



CloudLocate™ delivers cloud-based positioning to extend the life of energy-constrained IoT applications up to 10x vs standard GNSS power-saving approaches.






Product selection guide

u-blox products come in various integration levels catering to all kinds of needs, from low volume, ease of use scenarios to scalable solutions for customized applications. The product offering includes modules, SiPs, smart antenna modules, and chips. Modules and SiPs provide long-term sustainability using shared form factors and offer easy migration to High Precision, Dead Reckoning and Timing technologies. Smart antenna modules, which integrate all the GNSS technology and antenna, are ideal for those with little GNSS know-how. SiPs (System in Package) are optimized for size, weight, and power. Chips are ideal for highest volumes and need expert GNSS know-how.

	Chips	SiP modules	Modules	Smart antenna modules
Highlights	<ul style="list-style-type: none"> Economy of scale for highest volume opportunities 	<ul style="list-style-type: none"> Optimized for minimal size, weight, and power Minimal design efforts 	<ul style="list-style-type: none"> Form factor roadmap brings longest lifecycle (investment protection) Minimal design efforts Easy migration between SPG, HPG, and DR receivers 	<ul style="list-style-type: none"> Easy to design-in Integrated antenna: no radio frequency expertise needed
Product grade	Automotive, Professional, and Standard	Professional and Standard	Automotive, Professional, and Standard	Professional
Package size (pieces/reel)	4000 pieces	500 to 1000 pieces	250 to 500 pieces	250 to 500 pieces
Dominant market	Automotive, Industrial, Consumer	Industrial, Consumer	Automotive, Industrial	Industrial













Product grades

	 Standard grade	 Professional grade	 Automotive grade
Environmental conditions	Consumer environment	Industrial environment	Automotive environment
Temperature	-20 °C to +65 °C	-40 °C to +85 °C	-40 °C to +85 °C (or up to +105 °C)
Product qualification	JESD47 (ICs) Subset of ISO 16750 (modules)	AEC-Q100 (ICs) ISO 16750 (modules)	AEC-Q100 (ICs) Extended ISO 16750 (modules)
Process levels for design, manufacturing, and testing	<ul style="list-style-type: none"> 100% outgoing test Product traceability PCN process Failure analysis 	Standard grade, plus: <ul style="list-style-type: none"> 100% automatic X-ray and optical inspection of modules 	Professional grade, plus: <ul style="list-style-type: none"> PPAP, long product life cycles, ISO/TS 16949 manufacturing, automotive test flow, automotive PCN process, component traceability, 8D failure reporting, 0-ppm program



Product selector table

Our form factor roadmap allows for easy migration from older to newer generations and for similar designs with different technologies or levels of precision. For a detailed view of our product offering, refer to our product selector: www.u-blox.com/product-selector.

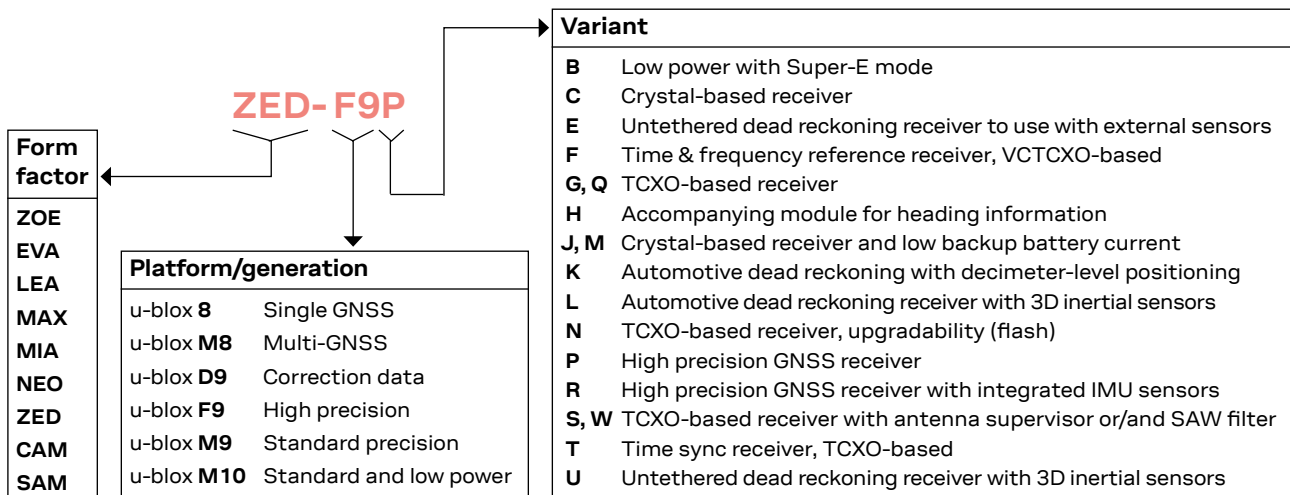
Category	Product	Form	Precision, power	Technology	Interfaces	Multi-band	Upgradable	Automotive
SiP module	 4.5 X 4.5 mm	MIA	meter level, ultra-low-power	SPG	UART DDC			
SiP module	 4.5 X 4.5 mm	ZOE	meter level	SPG	UART SPI DDC		Yes	
SiP module	 7.0 x 7.0 mm	EVA	meter level	DR SPG	UART USB SPI DDC		Yes	
Module	 9.7 x 10.1 mm	MAX	meter level, ultra-low-power	SPG	UART DDC			
Module	 12.2 x 16.0 mm	NEO	dm level meter level	DR HPG SPG Timing	UART USB SPI DDC		Yes	Yes
Module	 17.0 x 22.0 mm	ZED	cm level nanoseconds	DR HPG Timing	UART USB SPI DDC	Yes	Yes	
Module	 17.0 x 22.0 mm	LEA	nanoseconds	SPG Timing	UART USB SPI DDC	Yes	Yes	
Smart antenna module	 9.6 x 14.0 mm	CAM	meter level	SPG	UART SPI DDC			
Smart antenna module	 15.5 x 15.5 mm	SAM	meter level, ultra-low-power	SPG	UART DDC			
Chip	 2.99 X 3.21 mm	47-pin WL-CSP	meter level	SPG	UART USB SPI DDC			
Chip	 4.0 X 4.0 mm	28-pin QFN	meter level	SPG	UART SPI DDC			
Chip	 5.0 X 5.0 mm	40-pin QFN	meter level	DR SPG	UART USB SPI DDC		Yes	Yes








Advantages to using modules

	Quick to market & no design risk	<ul style="list-style-type: none"> • Plug and play – just connect an antenna and power • No radio frequency or hardware qualification needed • Fully qualified, tested, and certified
	Future proof & reduced supplier base	<ul style="list-style-type: none"> • Pin-to-pin and software compatibility across generations • Only one supplier for functional block, thus reducing sourcing complexity • High quality components for consistent performance and lowest ppm
	Low engineering cost & no capital investment	<ul style="list-style-type: none"> • One standard SMD component for simple assembly and production testing • No test infrastructure investment • One-stop technical support (field support and returns)

u-blox positioning product naming



u-blox values and promise

	Competent technical support worldwide	<ul style="list-style-type: none"> • Over 20 years of R&D in GNSS technology • Lifetime support and maximum competence
	Quick time to market	<ul style="list-style-type: none"> • Short and reliable delivery times • Module form factor consistency
	High quality	<ul style="list-style-type: none"> • Global leader in positioning and wireless communication • In-house chip technology
	Broad spectrum of solutions	<ul style="list-style-type: none"> • Strong synergies between technologies - Wi-Fi, V2X, cellular, and positioning • Hardware, software, services, and solutions
	Security	<ul style="list-style-type: none"> • Advanced spoofing and jamming detection • End-to-end trust of domain

Further information

For contact information, see www.u-blox.com/contact-u-blox.

For more product details and ordering information, see the individual product data sheets.

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