

# u-blox GNSS product overview



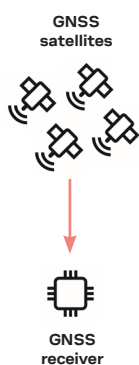
Optimized cost and performance combined with easy integration

## 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

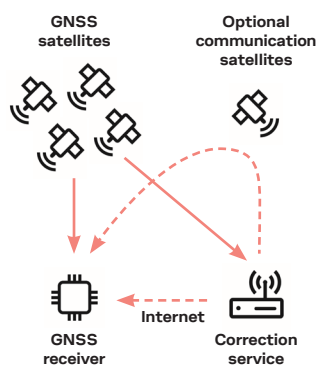


### Standard precision (SPG)

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 down to centimeter-level accuracy

#### 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

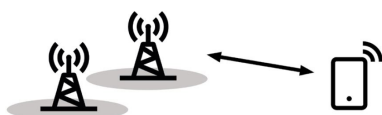
Accurate clock and frequency generation based on satellite positioning technology

#### Application areas:

- Wireless communication
- Industrial
- Power distribution
- Financial applications

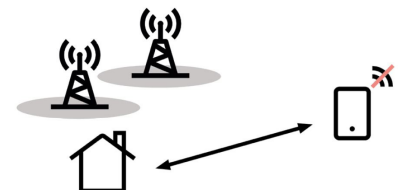
## Services

AssistNow Online and AssistNow Offline are u-blox's end-to-end A-GNSS services for OEM customers and their end users. These services boost GNSS acquisition performance for devices with or without network connectivity. AssistNow Online and AssistNow Offline can be used either alone or in combination.



AssistNow brings four key advantages:

1. Faster time-to-first-fix (TTFF)
2. Improved position availability
3. Improved position accuracy
4. Lower power consumption








## 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.

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





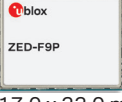






## Product grades

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



## 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.

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

For a detailed view of our product offering, refer to our guided product selector:

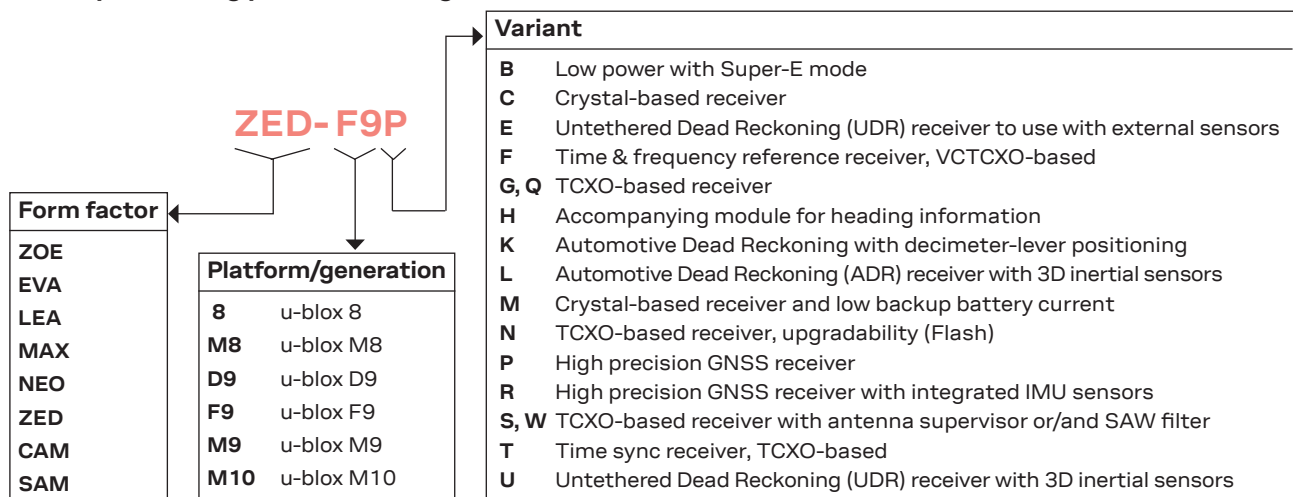
[www.u-blox.com/guided-product-selector](http://www.u-blox.com/guided-product-selector)




## Advantages to using modules

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

## u-blox positioning product naming



## u-blox values and promise

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

## Further information

For contact information, see [www.u-blox.com/contact-us](http://www.u-blox.com/contact-us).

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

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