

# ZED-X20K



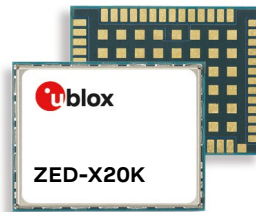
## u-blox X20 all-band high-precision automotive DR GNSS module

### Global high-precision solution that is easy to roll out and scale

- All-band enables uniform performance worldwide without a cellular connection
- Global PPP-AR solution including Galileo HAS and PointPerfect Global
- Parallel multiple outputs up to 50 Hz (dead reckoning) to fit any vehicle architecture
- Superior multipath rejection
- Advanced spoofing and jamming mitigation / ISO21434 compliance
- Global supply chains including China and non-China



17.0 × 22.0 × 2.4 mm



### Product description

ZED-X20K features the u-blox X20 all-band GNSS platform, for global high-precision solutions designed for effortless rollout and massive scalability. The all-band technology enables uniform performance worldwide with no need for a cellular connection. It natively supports global PPP-AR solutions, including Galileo HAS and PointPerfect Global, ensuring consistent, centimeter-level accuracy across diverse geographical regions. To fit any modern vehicle architecture, the module delivers multiple parallel outputs at up to 50 Hz.

Its sophisticated dead reckoning algorithms cleverly fuse GNSS measurements with vehicle dynamics to maintain high-accuracy positioning where satellite signals alone would fail. ZED-X20K is further distinguished by superior multipath rejection and optimized multi-constellation reception to maximize satellite visibility even in the most challenging urban canyons. It is a self-contained solution, providing the best possible system performance to address critical issues such as latency constraints, RF front-end design, and complex RTK/PPP-AR integration. This eliminates the technical risk and engineering effort of integrating third-party positioning engines, significantly optimizing time to market.

For security and reliability, the position engine incorporates advanced spoofing and jamming mitigation and is developed in compliance with ISO 21434. With an operating range up to 105 °C, the module can be integrated anywhere in the vehicle without restrictive thermal design constraints.

u-blox uses global supply chains for resilient, flexible production, with Chinese and non-Chinese manufacturing. u-blox manufacturing partner sites are certified and adhere to the latest automotive industry standards. Qualification tests are as stipulated in the AEC-Q104 standard: “Failure mechanism based stress test qualification for multichip modules (MCM) in automotive applications.”

	ZED-X20K
<b>Grade</b>	
Automotive	•
Professional	
Standard	
<b>GNSS</b>	
GPS + QZSS/SBAS	•
GLONASS	•
Galileo	•
BeiDou	•
NavIC	•
All-band	L1/L2/L5/L6
<b>Compatible u-blox services</b>	
AssistNow™ Live Orbits	•
PointPerfect portfolio	•
<b>Interfaces</b>	
UART	2
USB	1*
SPI	1
DDC (I2C compliant)	1
<b>Features</b>	
Programmable (flash)	•
Additional SAW	•
RTC crystal	•
OSR correction support	•
PointPerfect support	•
PPP-AR	•
Dead reckoning	•
Timepulse	1
<b>Power supply</b>	
3.0 V – 3.6 V	•

\* Debugging only



## Features

Receiver type	672-channel u-blox X20 engine GPS L1C/A, L2C, L5 GLO L1OF GAL E1B/C, E5a, E6 BDS B1I, B1C, B2a, B3I QZSS L1C/A, L1C/B*, L2C, L5 NavIC L1*, L5 SBAS L1C/A	
Nav. update rate	RTK	up to 50 Hz
Position accuracy	RTK PPP	< 10 cm + 1 ppm CEP < 20 cm
ADR position error	< 1% of distance travelled without GNSS	
Convergence time	RTK PPP-RTK PPP*	< 10 sec < 40 sec < 120 sec
Acquisition	Cold starts Aided starts Reacquisition	24 s 2 s 2 s
Sensitivity	Tracking & Nav. <sup>1</sup> Cold starts Hot starts	-160 dBm -148 dBm -158 dBm
Built-in features	TCXO, RTC, flash memory, 3D gyroscope, 3D accelerometer, diplexer, SAW filters	

<sup>1</sup> Limited by firmware for best DR performance  
\* Feature in development

## Software features

Anti-jamming	Advanced anti-jamming algorithms
Anti-spoofing	Advanced anti-spoofing algorithms
Raw data	Code, Doppler, pseudorange measurements and IMU data
Protocols	NMEA 4.11, UBX binary, RTCM v. 3.4, SPARTN v. 2.0.2

## Interfaces

Serial interfaces	2 UART 1 SPI 1 USB (only for debugging) 1 DDC (I2C compliant)
Digital I/O	Configurable timepulse
Timepulse	Configurable: 0.25 Hz to 10 MHz

## Package

54-pin LGA (land grid array), 17 x 22 x 2.4 mm

## Environmental data, quality, and reliability

Operating temp.	-40 °C to +105 °C
Storage temp.	-40 °C to +105 °C
Environmental grade	RoHS compliant (2015/863/EU)
Green (halogen-free)	
EU RED	EU Radio Equipment Directive compliant 2014/53/EU
Reliability class	Qualified according to u-blox qualification policy, based on a subset of AEC-Q104
Chips	Integrated u-blox X20 chips qualified according to AEC-Q100
MSL	3
Quality management	Manufactured and fully tested in ISO/TS 16949 certified production sites

## Electrical data

Supply voltage	2.7 V to 3.6 V
Power consumption	65 mA at 3.0 V (continuous)
Backup supply	1.65 V to 3.6 V

## Compatible u-blox products and services

Location services	AssistNow Live Orbits PointPerfect GNSS correction services
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## Support products

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

EVK-X20DR	Easy to use evaluation board with various communication interfaces for correction services
u-center 2	Highly intuitive software for GNSS performance evaluation
ANN-MB2	All-band high precision antenna

## Product variants

ZED-X20K-01A	u-blox X20 all-band high-precision automotive DR GNSS module
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## Further information

For contact information, see [www.u-blox.com/contact-u-blox](http://www.u-blox.com/contact-u-blox).  
For more product details and ordering information, see the product data sheet.

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