Product summary

ZED-F20P

u-blox F20 triple-band high precision GNSS module

Standard

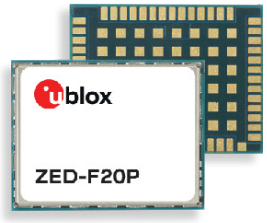
Professional

Automotive

High precision GNSS receiver for air and ground robotics

- Triple-band GNSS module with RTK and PPP-RTK support
- Optimal performance for compact, high-volume applications
- Native support for u-blox PointPerfect Flex and Live
- Industrial standard ZED form factor
- u-blox end-to-end hardened security

17.0 × 22.0 × 2.4 mm



Product description

The ZED-F20P module delivers robust high-precision GNSS performance for fast-scaling robotics applications on the ground and in the air. With support for triple-band GNSS (L1/L2/L5) and advanced positioning techniques, including RTK and PPP-RTK, it enables centimeter-level accuracy with fast convergence and highest reliability — ideal for autonomous systems operating in dynamic, real-world conditions.

Optimized for the needs of robotic lawn mowers, unmanned autonomous vehicles (UAVs), and other industrial automation platforms, ZED-F20P balances high performance with power efficiency in a compact, integration-friendly design. It concurrently receives signals from GPS, Galileo, BeiDou, QZSS, and NavIC across three frequency bands, ensuring resilient positioning even in GNSS-challenged environments.

ZED-F20P supports RTCM and SPARTN correction formats, enabling flexibility across local and cloud-based correction sources, including Virtual Reference Stations (VRS) and continental-wide SSR services. Its fast update rate, minimal cycle slips, and low-noise measurements make it ideal for precise control loops and smooth path execution.

Designed to accelerate time-to-market for innovative robotic platforms, ZED-F20P includes key security features, including OSNMA-based message authentication, providing both accuracy and integrity in safety-critical systems.

ZED-F20P is your GNSS foundation for the next generation of scalable robotic applications.

	ZED-F20P
Grade	
Automotive	
Professional	•
Standard	
GNSS	
GPS / SBAS	•
QZSS	•
Galileo	•
BeiDou	•
NavIC	•
Band support	L1/L2/L5
Compatible u-blox services	
AssistNow™	•
PointPerfect Flex	•
PointPerfect Live	•
Interfaces	
UART	2
SPI	1
DDC (I2C compliant)	1
Features	
Programmable (flash)	•
Carrier phase output	•
Additional SAW	•
RTC crystal	•
Oscillator	T
RTK rover	•
RTK base station	•
Timepulse	1
Power supply	
2.7 V – 3.6 V	•

T = TCXO

ZED-F20P

Features

Receiver type	672-channel u-blox F20 engine GPS L1C/A, L2C, L5 GAL E1B/C, E5a BDS B1I, B1C, B2a QZSS L1C/A, L1C/B*, L2C, L5 NavIC L1*, L5 SBAS L1C/A	
Nav. update rate	RTK	up to 25 Hz
Position accuracy [1]	Standalone SBAS RTK PPP-RTK	1.2 m 0.6 m 0.6 cm + 1 ppm < 6 cm
Convergence time [1]	RTK PPP-RTK	< 7 sec < 40 sec
Acquisition	Cold starts Aided starts Reacquisition	25 s 2 s 2 s
Sensitivity	Tracking & Nav. Cold starts Hot starts Reacquisition	−167 dBm −148 dBm −158 dBm −160 dBm
Assistance	AssistNow Online OMA SUPL & 3GPP compliant	
Oscillator	TCXO	
RTC crystal	Built-in	
Anti-jamming	CW detection	
Anti-spoofing	Advanced anti-spoofing algorithms and OSNMA	
Memory	Flash	
Moving base*	For attitude sensing and heading applications	
Supported antennas	Active	

1 Depends on atmospheric conditions, baseline length, GNSS antenna, multipath conditions, satellite visibility, and geometry
* Feature in development

Interfaces

Serial interfaces	2 UART 1 SPI 1 DDC (I2C compliant)
Digital I/O	Configurable timepulse EXTINT input for wakeup RTK fix status GEOFENCE status
Timepulse	Configurable: 0.25 Hz to 10 MHz
Protocols	NMEA 4.11, UBX binary, RTCM v. 3.4, SPARTN v. 2.0.2

Package

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

Environmental data, quality, and reliability

Operating temp.	−40 °C to +85 °C
Storage temp.	−40 °C to +85 °C
Vibration	MIL-STD-810G (Category 24, 7.7g RMS)
Environmental grade	RoHS compliant (2015/863/EU)
Green (halogen-free)	
EU Radio Equipment Directive compliant 2014/53/EU	
Environmental grade	Qualified according to u-blox qualification policy, based on a subset of AEC-Q104
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	55 mA at 3.0 V
Backup supply	1.65 V to 3.6 V

Compatible u-blox location services

Location services	AssistNow A-GNSS service PointPerfect Flex GNSS correction service PointPerfect Live GNSS correction service

Support products

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

EVK-X20P-00	Evaluation kit with ZED-X20P configurable as ZED-F20P
u-center 2	Highly intuitive software for GNSS performance evaluation
ANN-MB2	All-band high precision antenna

Product variants

ZED-F20P-00B	Triple-band high precision GNSS module

Further information

For contact information, see **www.u-blox.com/contact-u-blox**.
For more product details and ordering information, see the product data sheet.