



## Single-Antenna Multi-Frequency GNSS Receiver

Model No. XT-D500

The XT-D500 is a multi-constellation GNSS receiver housed in a compact, low-power surface-mount module. Designed to meet the demands of mass-market applications such as robotics and autonomous systems, it features a wide range of interfaces for seamless integration. This high-reliability receiver supports tracking of all current and future GNSS constellations and signals, ensuring robust and accurate positioning. Equipped with AIM+ interference mitigation technology, the XT-D500 sets a new performance benchmark for GNSS solutions in its class.

### Key Features

- Supports multi-constellation, multi-frequency satellite signals
- Best-in-class RTK accuracy for high-precision positioning
- OSNMA-ready for enhanced signal authentication and security
- Industry-leading anti-jamming and anti-spoofing capabilities
- Ultra-low power consumption, ideal for power-sensitive applications
- Designed for easy integration into a wide range of systems

### Optimized for Automated Assembly

The module is engineered for seamless integration into high-volume automated assembly lines, requiring minimal additional components. All interfaces, commands, and data messages are fully documented to support efficient development and integration. The included RxTools software suite simplifies receiver configuration, monitoring, data logging, and analysis. For offline processing, the SDK library for PPK (Post-Processed Kinematic) enables easy and efficient data handling.

### Ultra-low power design

The XT-D500 provides RTK positioning at the lowest power consumption of any comparable device on the market. This means longer operation on a single battery charge, smaller batteries and greater usability.

### Easy-to-integrate

The XT-D500 comes with fully documented interfaces, commands and data messages. The included software allows receiver configuration and monitoring as well as data logging and analysis. An SDK is provided, which allows integrators to create professional custom post-processing applications. XT-D500 is compatible with its SDK library for PPK (Post-processed kinematic) offline processing.

## FEATURES

### GNSS signals

544 Hardware channels for simultaneous tracking of most visible signals:

- GPS: L1 C/A, L1P, L2C, L2P, L5
- GLONASS: L1 C/A, L2C/A, L3, L2P
- BeiDou: B1I, B1C, B2a, B2b, B2I, B3
- Galileo: E1, E5a, E5b, E6, E5 AltBoc
- QZSS: L1 C/A, L1 C/B, L2C, L5
- NavIC: L5
- SBAS: EGNOS, WAAS, GAGAN, MSAS, SDCM

### GNSS+ technologies

- **AIM+** industry leading anti-jamming, anti-spoofing interference monitoring & mitigation technology
- **IONO+** advanced scintillation mitigation
- **APME+** a posteriori multipath estimator for code and phase multipath mitigation
- **LOCK+** superior tracking robustness under heavy mechanical shocks or vibrations
- **RAIM+** (Receiver Autonomous Integrity Monitoring)

### OSNMA Support

### Formats

NMEA 0183, v2.3, v3.03, v4.0 RINEX v2.x, v3.x  
RTCM v2.x, v3.x (MSM messages included)  
CMR v2.0 and CMR+ (CMR+ input only)

### Connectivity to meet MIL-STD

Ethernet port (TCP/IP, UDP, LAN )  
Hi-speed RS232 port  
CAN port (optional)  
RS422 port with converter (optional) PPS output (max 100Hz) with NTP & PTP support  
GNSS Data Rate 100Hz  
General purpose output NTRIP (server, client, caster) FTP server, FTP push, SFTP (optional)

## PERFORMANCE

### RTK performance

Horizontal accuracy 0.6 cm + 0.5 ppm  
Vertical accuracy 1 cm + 1 ppm  
Initialization 7s

### Position accuracy

	Horizontal	Vertical
Standalone	1.2 m	1.9 m
SBAS	0.6 m	0.8 m
DGNSS	0.4 m	0.7 m

Velocity accuracy 0.03m/s

### Maximum update rate

Position 100Hz  
Measurements 100 Hz

Latency <10 ms

### Time precision

xPPS out 5 ns  
Event accuracy < 20 ns

### Time to first fix

Cold start < 45 s  
Warm start < 20 s  
Re-acquisition avg. 1 s

### Tracking sensitivity

-154 dBm

### Interfaces

On-board logging on micro-SD card (max 32 GB) Plug compatible with Pixhawk and ArduPilot (isolated) 1 PPS output Ethernet 2 Event markers for camera shutter synchronisation (isolated) Ready to integrate push-button start/stop logging on the SD-card (isolated)

## PHYSICAL AND ENVIRONMENTAL

**Input voltage** 5 VDC or 4.5–30 VDC (Adapter will be provided for 230V AC Supply)

**Weight** <1 Kg

**Size** 120.5 x 49.3x 53.2 mm

**Cooling** Passive cooling

**Chassis** Aluminum Alloy

### Antenna

Connectors 2 x TNC  
Antenna supply voltage 3–5.5 VDC  
Maximum antenna current 150 mA  
Antenna gain range 15–45 dB

### Environment

Operating temperature -40° C to +85° C  
Storage temperature -55° C to +85° C  
Humidity 5% to 95% (non-condensing)  
Vibration MIL-STD-810G  
Ingress Protection IP67

### Certification

RoHS compliant, CE certified,  
EMC MIL-STD-461E/F compliant



### OPTIONAL ACCESSORIES

1 GNSS Antenna  
5m LMR200 Cables For Each Antenna  
Antenna Mounting Structure (Metallic)

### SUPPORTING COMPONENTS

Web UI with full control and monitoring functionality.  
RxTools, a complete and intuitive GUI tool set for receiver control, monitoring, data analysis and conversion.xxxxxc1  
GNSS receiver communication SDK.  
Available for both Windows and Linux.



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Enabling connectivity between Technology & People



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