



Machine Control



Automation



Robotics



UAV

## Multi-frequency GNSS receiver with IRNSS

Model No. XT-500+

XT-500+ is a multi-frequency multi-constellation GNSS receiver featuring top positioning performance with flexibility to be used either as a base station or a rover receiver. In dual antenna mode it provides heading & pitch or heading & roll information on top of reliable and accurate positioning.

### Key Features

- Flexibility of use and easy-to-integrate
- Best-in-class SWaP (Size, Weight and Power)
- AIM+ industry-leading anti-jamming, anti-spoofing technology
- OSNMA Support
- Full-constellation, multi-frequency satellite tracking
- Sub-degree GNSS heading & pitch or heading & roll
- High update rate with low latency

### Reliable and robust

The XT-500+ is a state-of-the-art GNSS receiver using multi-constellation GNSS technology for maximal positioning availability and reliability in challenging conditions. It can be used as a base station or a rover receiver in single or dual antenna configuration. In dual antenna mode GNSS heading provides unmatched performance in both static and dynamic conditions removing the reliance on vehicle dynamics or magnetic sensors. Such a versatile receiver allows integrators to keep a single item in stock which can be used in a multitude of applications. Like GNSS based North Alignment and Heading, Roll and Pitch measurement of ground and flying objects.

### Reliable and robust

The XT-500+ 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.

### Reliable and robust

The XT-500+ comes with fully documented interfaces, commands and data messages. The included RxTools 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-500+ 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, L1C, L2C, L2 P(Y), L5
- GLONASS: L1 C/A, L2C/A, L3, L2P
- BeiDou: B1I, B1C, B2a, B2b, B2I, B3I
- Galileo: E1, E5a, E5b, E6
- 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, v3.01, v4.0 RTCM v2.x, v3.x (MSM messages included) CMR v2.0 and CMR+ (CMR+ input only)

### Connectivity to meet MIL-STD

1 High Speed USB device port  
1 RJ45 Ethernet port (TCP/IP, UDP, LAN 10/100 Mbps)  
1 Hi-speed RS232 port  
3 Pin Ruggedized Power port  
RS422 port with converter (optional)  
xPPS output (max 100Hz) with NTP & PTP support  
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  
Initialisation 7s

### GNSS attitude accuracy

Antenna separation	Heading	Pitch/Roll
1 m	0.15°	0.25°
5 m	0.03°	0.05°

### 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

### 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** < 900g (excluding antenna and mounting structure)

**Size** 147 x 125 x 55 mm

**Cooling** Passive cooling

**Chassis** Aluminum AlSi 12

### 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

2 GNSS Antenna (XT-GNSS-3024-01-00)  
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.  
GNSS receiver communication SDK.  
Available for both Windows and Linux



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