



## Dual-antenna Multi-frequency GNSS receiver for Heading Application *Model No. XT-400+*

With dual-antenna input, XT-400+ provides precise and reliable heading combined with centimeter level RTK positioning. Dual antenna heading capabilities in such a small form factor opens the door to advanced automation and navigation performance in both static and dynamic states, with reduced power consumption. Dual antenna GNSS delivers heading & pitch or heading & roll angles, which are available immediately at start-up, helping initialize inertial sensors which rely on heading for accurate navigation.

### 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**

### BENEFITS

#### State of the art with flexibility of use

The XT-400+ 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.

#### Ultra-low power design

The XT-400+ 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-400+ 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-400+ is compatible with its SDK library for PPK (Post-processed kinematic) offline processing.

## FEATURES

### GNSS signals

448 Hardware channels for simultaneous tracking of most visible signals!

- GPS: L1, L2
- GLONASS: L1, L2
- BeiDou: B1, B2, B3
- Galileo: E1, E5b
- QZSS: L1 C/A, L1 C/B, L2 S
- BAS: EGNOS, WAAS, GAGAN, MSAS, SDCM (L1)

### 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  
RTK  
GNSS Heading

### Formats

NMEA 0183, v3.01, v4.0  
Septentrio Binary Format (SBF)  
RINEX v2.x, v3.x  
RTCM v2.x, v3.x (MSM messages included)  
CMR v2.0 (out/in), CMR+ (input only)

### Connectivity to meet MIL-STD

1 High Speed USB device port  
Inbuilt Bluetooth 5.2V  
1 Hi-speed RS232 port  
1x 3V PPS output, max 100Hz (5V Optional)  
NTP & PTP support  
General purpose output NTRIP (server, client, caster) FTP server, FTP push, SFTP  
On-board logging on micro-SD card (max 32 GB)

## 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	0.7 m
DGNSS	0.4 m	0.7 m

Velocity accuracy 0.03m/s

### Maximum update rate

Standalone, SBAS, DGPS+attitude 50Hz  
Measurements 100 Hz  
RTK + attitude 20 Hz  
Latency <10 ms

### Time to first fix

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

Tracking sensitivity -154 dBm

### Tracking performance (C/N0 threshold)

Tracking 20dB-Hz  
Acquisition 33dB-Hz

### Optional Interfaces

Plug compatible with Pixhawk and ArduPilot  
RS422 port with converter  
2 Event markers for camera shutter synchronisation  
Ready to integrate push-button start/stop logging on the SD-card

## 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

Aluminium AISi 12

### Antenna

Connectors 2 x TNC  
Antenna supply voltage 3–5.5 VDC  
Maximum antenna current 150 mA  
Antenna gain range 15–35 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 IP65

### 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) Cable breakout

### 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.



**Xtragen Technologies Private Limited**  
Enabling connectivity between Technology & People

#201, Building No. 44, 80 Ft Road, Royal Lake Front Residency, JP Nagar Phase 8, Bangalore -560076  
Contact No: +91 9500042618 Email: [sales@xtragen.in](mailto:sales@xtragen.in) Website: [www.xtragen.in](http://www.xtragen.in)

