Xtragen Technologies Private Limited
Enabling connectivity between Technology & People

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Machine Control

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XTRAGEN XT-C625-500+

Dual-Antenna Multi-Frequency GNSS Receiver for Heading Application/ Compass

XT-C625-500+ 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

BENEFITS

State of the art with flexibility of use

The XT-C625-500+ 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.

Ultra-low power design

The XT-C625-500+ 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.

Easy to integrate

The XT-C625-500+ 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-C625-500+ 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, B3
- ✔ 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
1 Hi-speed serial port (Isolated)
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

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

RTK Performance

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

GNSS attitude accuracy

Heading accuracy	0.25°
Roll/Pitch Accuracy	0.55°

Velocity accuracy

0.03m/s

Latency

<10 ms

Maximum update rate

Position	100Hz
Measurements	100Hz

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

Size	730 x 120 x 120 mm
Weight	<2Kg
Input voltage	5 VDC or 4.5–30 VDC (Adapter will be provided for 230V AC Supply)
Cooling	Passive cooling
Chassis	Aluminium

Antenna Parametrers

Radiation pattern	Hemispherical
Polarization	RHCP
VSWR	≤2:1
Impedance	50 ohms
Antenna Gain	≥3 dBic
Axial Ratio	≤ 3 dB
LNA Gain	≥40 dB
Noise Figure	≤ 1.5 dB
LNA DC Power	3.3V-12V/ < 50 mA

Environment

Operating temperature	–40° C to +85° C
Storage temperature	–55° C to +85° C

Certification

Thermal Cycling	As per JSS 55555, Test number 22
Vibration Test	As per JSS 55555, Test number 28
Rain Test	As per JSS 55555, Test number 12
Dust Test	As per JSS 55555, Test number 14

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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