Tersus UAV PPK Solution

Cost-effective UAV PPK solution

Overview

Tersus UAV PPK solution includes BX306 PPK Receiver, AX3705 Helix Antenna (or AX3703 GNSS Aviation Antenna as another option) and Tersus GeoPix Software. BX306 PPK Receiver supports multi-constellations and dual-frequencies. It has in-built 4GB memory (eMMC) for GNSS observation data recoding. Very small and light AX3705 Helix Antenna and AX3703 GNSS Aviation Antenna are designed for UAV applications.

Tersus GeoPix integrates the functions of GNSS observation post processing, Event Mark interpolation and geotagging in EXIF. By clicking one button after input all necessary data, the software provides the result directly as input for image processing software. Tersus GeoPix is part of Tersus Tool Suite which can be downloaded from Tersus official website.

Key Features

| |
|---|
| Supports GPS L1/L2, GLONASS L1/L2, and BeiDou B1/B2 |
| Supports 384 channels |
| Up to 20Hz raw data output |
| Supports in-built 4GB memory, which makes data collection easy |
| Log/command compatible with NovAtel protocol |
| Supports PPS output and event mark input |
| Serial ports with LVTTL |
| External antenna inputs through SMA connectors |
| Data output: NMEA-0183 and Tersus binary format |
| Correction: RTCM 2.x/3.x/CMR/CMR+ |
| Easy to integrate with Pixhawk and other autopilots |
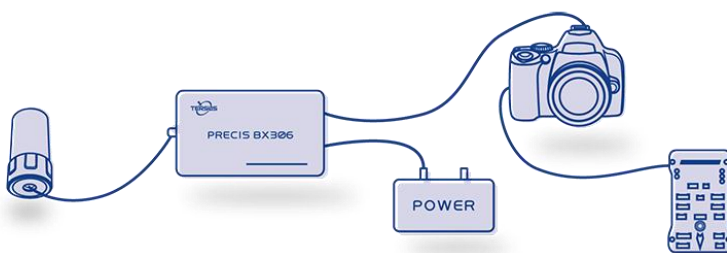
Note: If users want to customize the product portfolio, please contact sales@tersus-gnss.com by email.

Technical Specifications
- BX306 PPK Enclosure

Performance

Signal Tracking:	
GPS L1/L2, GLONASS L1/L2, BeiDou B1/B2	
GNSS Channels:	384
Single Point Positioning Accuracy (RMS):	
– Horizontal:	1.5m
– Vertical:	3.0m
PPK Positioning Accuracy (RMS):	
– Horizontal:	10mm+1ppm
– Vertical:	15mm+1ppm
Observation Accuracy (zenith direction):	
– C/A Code:	10cm
– P Code:	10cm
– Carrier Phase:	1mm
Time To First Fix (TTFF):	
– Cold Start:	<50s
– Warm Start:	<30s
Timing Accuracy (RMS):	20ns
Velocity Accuracy (RMS):	0.03m/s
Initialization (typical):	<10s
Initialization Reliability:	>99.9%
Correction:	RTCM 2.x/3.x/CMR/CMR+
Max. Update Rate:	20Hz
Input Voltage:	5~15V DC
Power Consumption (typical):	3W
Active Antenna Input Impedance:	50Ω
Storage:	In-built 4GB memory

Communication

Serial Ports:	LVTTL x2
COM Baud Rate:	Up to 460800bps
USB Ports:	USB 2.0 device x1
CAN Ports:	ISO/DIS 11898 x1*
PPS Ports:	LVTTL x1
Event Mark:	LVTTL x1
Antenna Connector:	SMA female x1

* This port's function is related to firmware version.

Physical

Size:	95x57x24mm
Weight:	150g
Operating Temperature:	-40℃ ~ +85℃

Technical Specifications
- AX3705 Helix Antenna

Performance

Frequencies:	GPS L1/L2
	GLONASS L1/L2
	BeiDou B1/B2

Peak Gain:	
1217-1257MHz	2dBi
1559-1610MHz	2.5dBi
Polarization:	RHCP
Axial Ratio:	≤3dB
Impedance:	50Ω
Phase Center Offset:	37.2mm
Phase Center Accuracy:	±3mm

Mechanical

Size:	φ 27.5x60mm
Connector:	SMA Male
Weight:	≤19g
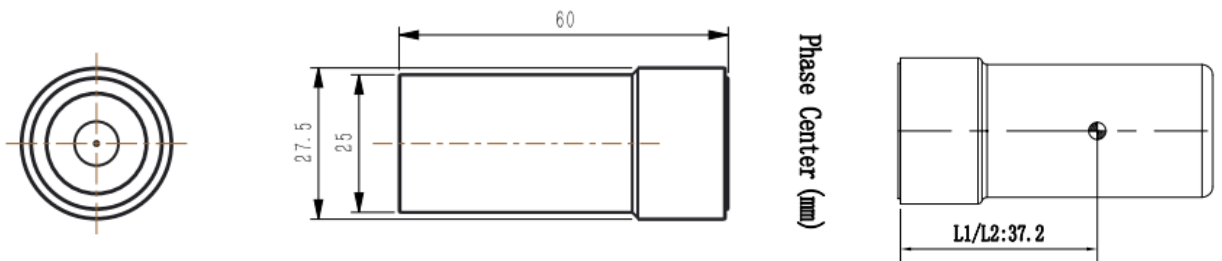
LNA

LNA Gain:	33dB(typical)
Noise Figure:	≤1.5dB
Output/Input VSWR:	≤2.0
Operation Voltage:	3.3V~12V DC
Operation Current:	55mA (max)
Group Delay Ripple:	< 15ns

Environmental

Operating Temperature:	-40℃ ~ +70℃
Storage Temperature:	-40℃ ~ +70℃
Humidity:	95% not condensing
Dust- & Waterproof:	IP65

Structure Overview

Website | www.tersus-gnss.com
Sales Inquiry | sales@tersus-gnss.com
Technical Support | support@tersus-gnss.com

Technical Specifications
- AX3703 GNSS Aviation Antenna

Performance

Frequencies:	
GPS L1/L2, GLONASS L1/L2, BeiDou B1/B2/B3	
Peak Gain:	4dBi
Polarization:	RHCP
Axial Ratio:	≤3dB
Azimuth Coverage:	360°
Impedance:	50Ω
Output VSWR:	≤2.0
Phase Center Offset:	20.24mm
Phase Center Accuracy:	±3mm

LNA

LNA Gain:	36±2dB
Noise Figure:	≤2.0dB
Output VSWR:	≤2.0
Operation Voltage:	3V~12V DC
Operation Current:	≤45mA
Group Delay:	≤5ns

Mechanical

Dimension:	φ 90x41.5mm
Connector:	SMA Female
Weight:	137g

Environmental

Operating Temperature:	-40℃ ~ +80℃
Storage Temperature:	-55℃ ~ +85℃
Humidity:	95% not condensing
Dust- & Waterproof:	IP67

Structure Overview

Top view   Side view   Bottom view

Dimension (mm)
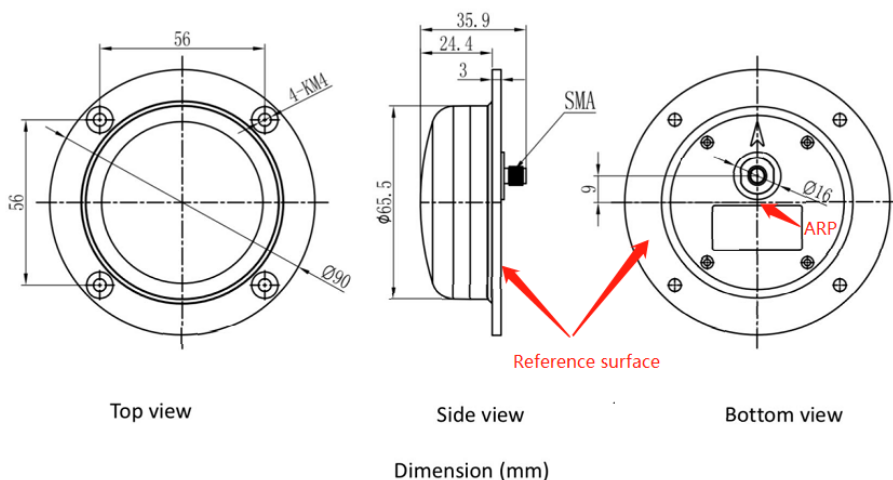
Technical Specifications
- Tersus GeoPix

System Requirements

Operating System:
Microsoft Windows XP, 7, 8, 10 (32-bit and 64-bit)

Processor
- Minimum: Intel Core 2.0 Duo
- Recommended: Intel Core i5

RAM
- Minimum: 4GB
- Recommended: 8GB

Hard Disk
- Minimum: 500GB
- Recommended: 1TB

Graphics Card
- Minimum: Direct X9 compatible integrated graphics
- Recommended: Direct X9 compatible 2GB discrete graphics

Language Supported

English

Features

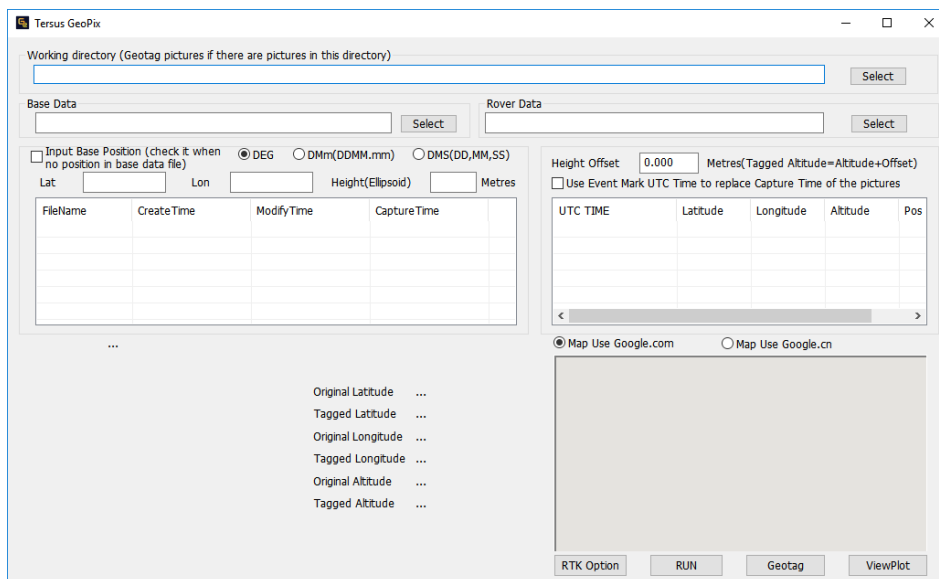Simple software interface and simple workflow

Automatic processing GNSS data and geotagging images by one button click

Shows the result in trajectory plot and the images on online map

Provides PPK result in both EXIF and text file

The result can be directly used by image processing software, i.e., Pix4D, Agrisoft, etc.

Supports Base Station data from CORS or other brands GNSS Receiver, i.e., RTCM3 and RINEX format

Tersus GeoPix main interface