K803 Lite (L1) GNSS Board

Signal Tracking _____

•	•	
GPS		L1 C/A
GLONASS		L1
BDS		B1I
Galileo		E1
QZSS		L1C ¹
SBAS		WAAS, EGNOS, MSAS, GAGAN, SDCM

Performance Specifications _____

Cold start	<60 s ²
Hot start	<15 s
RTK Initialization time	<10 s
Signal reacquisition	<1 s
Initialization reliability	>99.9%
Velocity accuracy	4 g
Overload	15 g
Time accuracy	20 ns

Positioning Specifications ———

Post Processing	2.5 mm + 1 ppm Horizontal 5 mm + 1 ppm Vertical		
Single Baseline RTK	8 mm + 1 ppm Horizontal		
	15 mm + 1 ppm Vertical		
Pass-to-pass Accuracy	15 cm		
DGPS	<0.4 m RMS		
SBAS	0.6 m Horizontal		
	0.8 m Vertical		
Standalone	1.5m 3D RMS		

Communications _____

4 LVTTL ports	
1 SPI ³	
2 Event Marker input	
1 Pulse Per Second (PPS) output	
3 indicator pins show the working status	

Electrical _____

Input voltage	+3.3 – 5.5 V DC
Power consumption	0.95 W

Data Format

Correction data I/O	RTCM2.X, 3.X, CMR(GPSonly), CMR+(GPSonly)
Position data output	-ASCII: NMEA-0183 GGA, GSA, GSV, RMC, HDT,
	VHD, ZDA, VTG, GST, GLL; PTNL, PJK; PTNL,
	AVR; PTNL, GGK
	-ComNav Binary
	-BINEX Data: 0x00, 0x01-01, 0x01-02, 0x01-05,
	0x7d-00, 0x7e-00, 0x7f-05
	-Position data output rate: 1 Hz, 2 Hz, 5Hz, 10

Antenna Interface

Impedance Match	Wiring 50 Ω impedance matching
LNA Power: External	+3.3V ~ +5V ± 5%VDC @ 0-100mA
LNA Gain	20 ~ 40dB (suggested)

Physical ———

Size (L × W × H)	46 mm×71 mm
Hardware interface	2 × 12 pin, 2 mm, pin-to-pin with common brands
Weight	20 g

Software —

ComNav	Compass	Receiver	Utility	software
Compass	Solution	software		

Optional Accessories _____

AT-series GNSS antenna 5m/10m RF Cables

1. QZSS is upgradeable.

2. Cold start < 40s with the signal acquisition acceleration module.

3. SPI is reserved, support customization.

ComNav Technology Ltd.

Building 2, No. 618 Chengliu Middle Road, 201801 Shanghai, China

Tel : +86 21 64056796 Fax: +86 21 54309582

Email: sales@comnavtech.com www.comnavtech.com





K803 Lite (L1) GNSS Board

Professional Smooth Positioning Solution For Your High-Precision Agriculture











Pin-to-pin with Common Brands



SBAS Sub-meter SBAS Accuracy

Accurate Pass-to-pass

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With full-constellation tracking, low power design, DP-filter smooth positioning capabilities, the K803 Lite(L1) GNSS board is an ideal solution for precision agriculture, machine guidance and other system integrations.





High Precision On-board GNSS module

CORE TECHNOLOGY



Embedded with QUANTUM III SoC chip, the K803 Lite(L1) is capable of tracking all running and planned constellations, improving the availability and reliability of GNSS positioning.

DP-filter

Based on the GNSS signal carrier phase and Doppler observations, the K803 Lite (L1) can provide a smooth and accurate trajectory without GNSS correction data input. Theoretically, the velocity accuracy of the moving carriers calculated via Doppler frequency shift can reach 1cm/s, which is ideal for some dynamic applications.



The K803 Lite(L1) module largely reduces the sudden position jumps via DP-filter algorithm, providing a smooth positioning trajectory in single-point positioning mode.

Pass-to-pass

Pass-to-pass error is based on the position offset between the desired track spacing and the actual track spacing calculated by GNSS receivers. Over a 15-minute time window, 95% of the pass-to-pass error of K803 Lite (L1) is within 12cm, and the overall error value is within 15cm.



K803 Lite(L1)Pass-to-pass Accuracy within 15min Window

PASS-TO-PASS ACCURACY

Taking full advantage of single-frequency GNSS carrier phase and Doppler observation, K803 Lite (L1) provides a smooth and accurate pass-to-pass solution for relevant applications. With the help of the DP-filter algorithm, the relative accuracy of K803 Lite (L1) between 2 consecutive epochs is within 1cm in single point positioning mode. For longer periods like 15-30 min, the pass-to-pass accuracy can be kept within 15cm in 95% of the cases.



K803 Lite(L1)Pass-to-pass Accuracy

SUPPORTING PRODUCT



AT360 GNSS Geodetic Antenna

Featuring with high gain, low noise amplifier, high sensitivity and full-constellation tracking capability, AT360 is a good choice for users to develop systems or solutions for land survey, agriculture, machine control and deformation monitoring

- Support GPS, GLONASS, BDS, Galileo, QZSS, SBAS and L-Band tracking
- Low noise amplifier and high gain
- Millimeter level phase center error with outstanding stability and repeatability
- Strong capability of tracking satellites at low elevation angle
- Superior IP67 waterproof and dustproof design

APPLICATIONS



Agriculture

Machine Guidance

Robotics