K803 Lite (L1) GNSS Board

Ver.2021.8.10

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.

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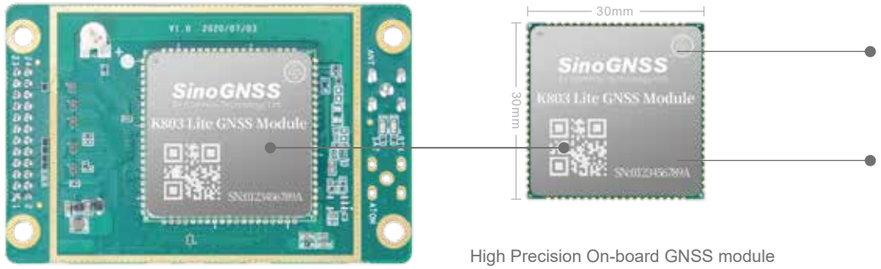
K803 Lite (L1) GNSS Board

Professional Smooth Positioning Solution
For Your High-Precision Agriculture

DP-filter Smooth | Full-constellation Tracking | Low Power Consumption | Pin-to-pin with Common Brands | Accurate Pass-to-pass | Sub-meter SBAS Accuracy

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.

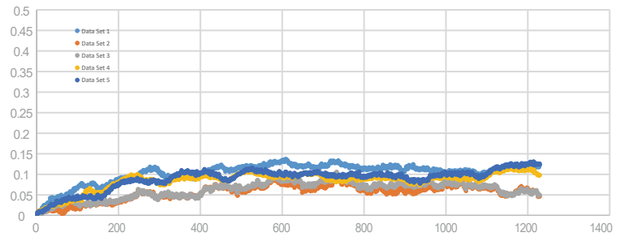


- Surface-mounted design, LGA 82 pin for easy integration
- 0.85W industry-leading low power consumption

High Precision On-board GNSS module

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

CORE TECHNOLOGY

QUANTUM™ 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 Smooth Technology

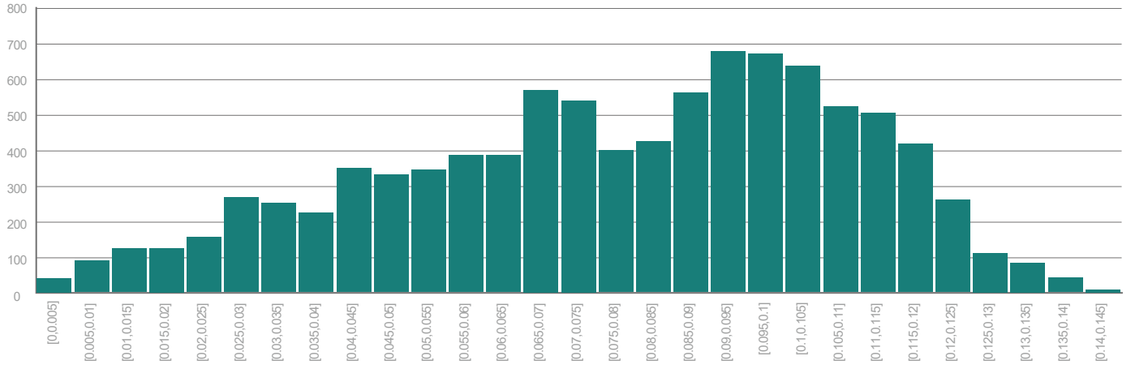
The K803 Lite(L1) module largely reduces the sudden position jumps via DP-filter algorithm, providing a smooth positioning trajectory in single-point positioning mode.

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.

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

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