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2025

PASSION WAY ELECTRONIC
Passion Way

Shenzhen Passion Way Electronic Co., Ltd.

Company Introduction

Shenzhen Passion Way Electronic Co., Ltd., established in November 2009, is a professional supplier of core components for GNSS-related products. Our main offerings include GPS modules/antennas, Beidou antennas/modules, wireless modules/antennas, and more. In addition, we provide GNSS customers with GPS/Beidou/GLONASS testing equipment (satellite signal simulators) and offer comprehensive testing solutions for the R&D, production, and QC stages of GNSS product manufacturing, serving satellite navigation terminal manufacturers. In addition, our own technical support team provides customers with customized, professional-grade GNSS product development solutions.

Since its establishment, the company has continued to grow and expand. Passion Way has always upheld the principles of honesty, integrity, and sincerity, striving to offer every customer the highest quality service. We provide comprehensive services including hardware reference design, circuit and PCB verification, software debugging support, prototype performance evaluation, production review, supply, and logistics assurance. After years of effort, we have built an extensive client base in the GNSS industry and established an excellent reputation.

Main chip QVL ecosystem

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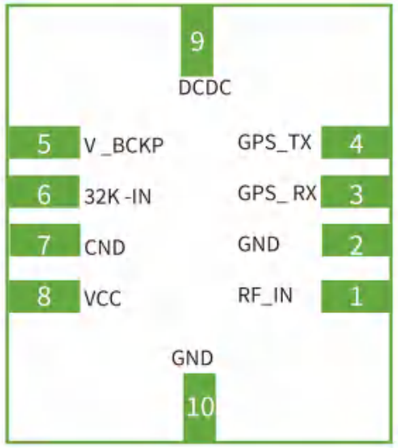
MN61 single-frequency multi-system ultra-compact positioning module

The MN61 is a next-generation, single-frequency, multi-system meter-level positioning module for BDS/GPS/GLONASS/Galileo/QZSS, independently developed by Passion Way. It is capable of simultaneously tracking BDS B1I/B1C*, GPS L1, GLONASS L1, Galileo E1, QZSS L1, and other signal frequencies, supporting simultaneous multi-system joint positioning.

This module features a compact size of 6×8×2.4mm, utilizes SMT pads, and supports standard pick-and-place as well as fully automated reflow soldering integration. This module is widely used in navigation and positioning applications such as walkie-talkies, handheld devices, and bicycles.



Technical advantages

- **Single-frequency, all-system**
  Support joint positioning with BDS, GPS, Galileo, GLONASS, and QZSS multiple systems simultaneously.
- **Meter-level positioning**
  Support on-chip single-frequency multi-system positioning calculation, with positioning accuracy up to 2 m.
- **Strong real-time anti-interference capability**
  Built-in wideband and narrowband anti-interference technology enables real-time detection and removal of interference, withstanding total interference power of no less than -75 dBm.
- **Low power consumption, compact, and integrated**
  Support 6mm × 8mm × 2.4mm surface mounting

Satellite channels	64 channels	Dimensions	6mm*8mm*2.4mm
Constellation frequency bands	BDS B1I BIC*	Weight	0.8g
	GPS L1	Packaging	SMD surface mount
	GLONASS L1	Working temperature	-40°C+85°C
	Galileo E1	Storage temperature	-40°C+90°C
	QZSS L1	Electrical specifications	
		Power supply voltage	1.8V-3.3V
Positioning Accuracy	Positioning Accuracy: <2m	LNA power supply	
	Speed accuracy 0.1 m/s	Power consumption	Acquisition: 115 mW @ 3.3V 43 mW @ external DCDC
TTFF	Cold start: <28 s		
	Hot start: <1 s		Tracking: 80 mW @ 3.3V 29 mW @ external DCDC
	Warm start <10 s		
	Reacquisition <1 s		
PPS	20ns	Data format	NMEA0183
Positioning mode	GNSS		
Sensitivity (BDS)	Tracking: -165 dBm	Initialization time	<1s
	Cold start: -149 dBm	Initialization rate	99.90%
	Hot start: -156 dBm	Application limitations	Dynamic range ⩽ 4g
	Reacquisition: -159 dBm		Altitude ⩽ 18,000
Data refresh rate	1-5HZ		Speed ⩽ 515 m/s
Storage	ROM		Compliant with JEDEC standards, ROHS, and REACH requirements

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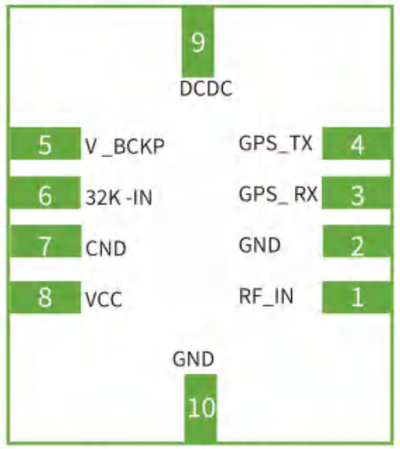
MN61D single-frequency Beidou ultra-compact positioning module

The MN61D module is a next-generation, single-frequency Beidou integrated module independently developed by Passion Way, supporting Beidou-2 and Beidou-3 systems, and capable of simultaneously tracking B1I/B1C signal bands. This module is designed based on the latest generation Icoe low-power RF/baseband integrated SoC chip, delivering up to meter-level positioning accuracy. It is suitable for a wide range of applications that demand both high positioning accuracy and low power consumption.

This module features a compact size of 6×8×2.4mm, utilizes SMT pads, and supports standard pick-and-place as well as fully automated reflow soldering integration. This module is widely used in navigation and positioning applications such as walkie-talkies, handheld devices, and bicycles.



Technical advantages

●BDS
Support B1I, B1C
●Meter-level positioning
Support on-chip single-frequency multi-system positioning calculation, with positioning accuracy up to 2 m.
●Strong real-time anti-interference capability
Built-in wideband and narrowband anti-interference technology enables real-time detection and removal of interference, withstanding total interference power of no less than -75 dBm.
●Low power consumption, compact, integrated
design with 6mm × 8mm × 2.4mm surface-mount support

Satellite channels	64 channels	Dimensions	6*8*2.3mm
Constellation frequency bands	BDS B1I B1C	Weight	0.8g
		Packaging	SMD surface mount
		Working temperature	-40°C+85°C
		Storage temperature	-40°C+90°C
		Electrical specifications	
		Power supply voltage	1.8V-3.3V
Positioning Accuracy	Positioning Accuracy: <2m	LNA power supply	
	Speed accuracy 0.1 m/s	Power consumption	Acquisition: 115 mW @ 3.3V 43 mW @ external DCDC
TTFF	Cold start: <28 s		
	Hot start: <1 s		Tracking: 80 mW @ 3.3V 29 mW @ external DCDC
	Warm start <10 s		
	Reacquisition <1 s		
PPS	20 ns	Data format	NMEA0183
Positioning mode	GNSS		
Sensitivity (BDS)	Tracking: -163 dBm	Initialization time	<1s
	Cold start: -147 dBm	Initialization rate	99.90%
	Hot start: -156 dBm	Application limitations	Dynamic range ⩽ 4g
	Reacquisition: -159 dBm		Altitude ⩽ 18,000
Data refresh rate	1-5HZ		Speed ⩽ 515 m/s
Storage	ROM		Compliant with JEDEC standards, ROHS, and REACH requirements

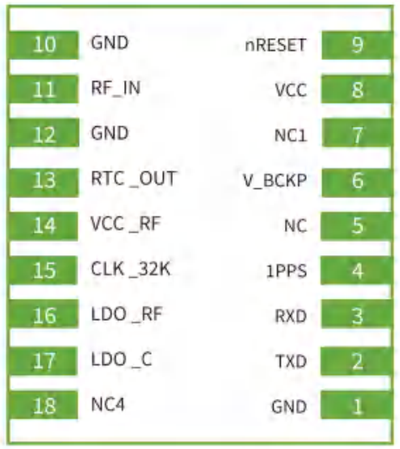
MX series

Compact size and low power consumption

Single-frequency, all-system

MX61 and MX16E are single-frequency, multi-system GNSS positioning modules developed by Passion Way, featuring the latest generation single-frequency chip from Icoe. They support joint positioning across BDS, GPS, Galileo, GLONASS, and QZSS systems simultaneously, and offer low power consumption, compact size, and outstanding performance.

These modules provide users with a fast, accurate, high-performance positioning experience and support raw measurement output, making them ideal for use in trackers, walkie-talkies, handheld devices, and two-wheelers.



Technical advantages

●Designed for global applications, supporting multi-constellation joint positioning
Support joint positioning with BDS, GPS, Galileo, GLONASS, and QZSS systems simultaneously

●Ultra-low power consumption
The product achieves ultra-low power consumption of 46 mW, greatly extending battery life

●Ultra-high sensitivity
Acquisition sensitivity better than -149 dBm, tracking sensitivity better than -165 dBm

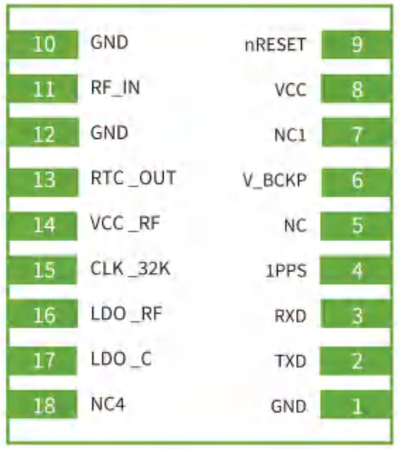
●Anti-interference
Built-in anti-interference technology enables real-time detection and removal of interference, withstanding total interference power of no less than -75 dBm.

Satellite channels	64 channels	Dimensions	10.1*9.7*2.3mm		
Constellation frequency bands	BDS B1	Weight	0.8g		
	GPS L1	Packaging	SMD surface mount		
	Galileo E1	Working temperature	-40°C+85°C		
	GLONASS G1	Storage temperature	-40°C+90°C		
	QZSS	Electrical specifications			
	SBAS	Power supply voltage	1.8-3.6V		
Positioning Accuracy	Single-point positioning accuracy: <2 m	LNA power supply			
	Speed accuracy: 0.1 m/s	Power consumption	MX61	Acquisition:	141mW
TTFF	Cold start: <28 s			Tracking:	95.7mW
	Hot start: <1 s		MX16E	Acquisition:	53.42mW
	Warm start <10 s			Tracking:	44mW
	Reacquisition <1 s				
Positioning mode	Multi-system joint positioning (default)	Data format	NMEA0183		
	Single-system standalone positioning				
Sensitivity (GNSS)	Tracking: -165 dBm	Initialization time	0.1s		
	Cold start: -149 dBm	Initialization rate	99.90%		
	Hot start: -155 dBm	Application limitations	Dynamic range ⩽ 4g		
	Reacquisition: -159 dBm		Altitude ⩽ 18,000		
Data refresh rate	1~5HZ		Speed ⩽ 5000/s		
Storage	ROM				

Single-frequency single-Beidou

MX61D and MX17E are single-frequency single-Beidou positioning modules developed by Passion Way, featuring the latest generation single-Beidou chip from Icoe. These modules support the BDS B1I/B1C bands and offer high accuracy, low power consumption, and high sensitivity.

The module is designed exclusively for Beidou applications and enables single-frequency, single-point positioning with the Beidou system. It supports raw measurement output and is widely applicable in fields such as power, transportation, and communications.



Technical advantages

●Support Beidou-only positioning
Simultaneous support for B1I and B1C bands

●Ultra-low power consumption
The product achieves ultra-low power consumption of 46 mW, greatly extending battery life

●Ultra-high sensitivity
Acquisition sensitivity better than -148 dBm, tracking sensitivity better than -163 dBm

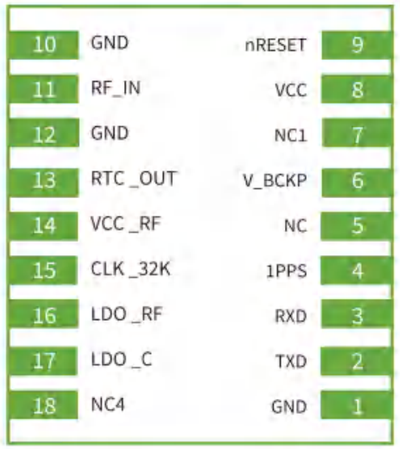
●Anti-interference
Built-in anti-interference technology enables real-time detection and removal of interference, withstanding total interference power of no less than -75 dBm.

Satellite channels	64 channels	Dimensions	10.1*9.7*2.3mm		
Constellation frequency bands	BDS B1I B1C	Weight	0.8g		
		Packaging	SMD surface mount		
		Working temperature	-40°C+85°C		
		Storage temperature	-40°C+90°C		
		Electrical specifications			
		Power supply voltage	1.8-3.6V		
Positioning Accuracy	Single-point positioning accuracy: <2 m	LNA power supply			
	Speed accuracy: 0.1 m/s	Power consumption	MX77D	Acquisition:	141mW
TTFF	Cold start: <28 s			Tracking:	95.7mW
	Hot start: <1 s		MX77E	Acquisition	53.42mW
	Warm start <10 s			Tracking	44mW
	Reacquisition <1 s				
PPS	20 ns	Data format	NMEA0183		
Positioning mode	Standalone Beidou positioning				
Sensitivity (BDS)	Tracking: -163 dBm	Initialization time	0.1s		
	Cold start: -148 dBm	Initialization rate	99.90%		
	Hot start: -155 dBm	Application limitations	Dynamic range ⩽ 4g		
	Reacquisition: -156 dBm		Altitude ⩽ 18,000		
Data refresh rate	1~5HZ		Speed ⩽ 5000/s		
Storage	ROM				

Single-frequency, all-system

MX67 and MX67E are single-frequency, multi-system GNSS positioning modules developed by Passion Way, featuring the latest generation single-frequency chip from Icoe. They support joint positioning across BDS, GPS, Galileo, GLONASS, and QZSS systems simultaneously, and offer low power consumption, compact size, and outstanding performance.

These modules provide users with a fast, accurate, high-performance positioning experience and support raw measurement output, making them ideal for use in trackers, walkie-talkies, handheld devices, and two-wheelers.



Technical advantages

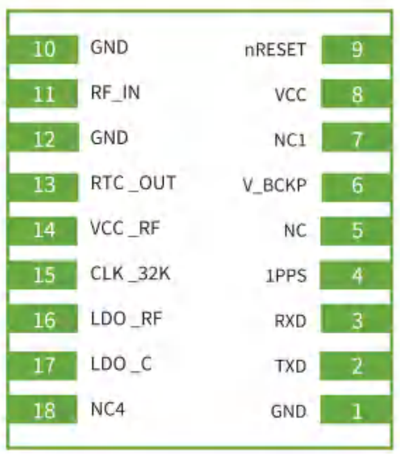
●Designed for global applications, supporting multi-constellation joint positioning
Support joint positioning with BDS, GPS, Galileo, GLONASS, and QZSS multiple systems simultaneously.
●Ultra-low power consumption
The product achieves ultra-low power consumption of 46 mW, greatly extending battery life
●Ultra-high sensitivity
Acquisition sensitivity better than -149 dBm, tracking sensitivity better than -165 dBm
●Anti-interference
Built-in anti-interference technology enables real-time detection and removal of interference, withstanding total interference power of no less than -75 dBm.

Satellite channels	64 channels	Dimensions	10.1*9.7*2.3mm		
Constellation frequency bands	BDS B1	Weight	0.8g		
	GPS L1	Packaging	SMD surface mount		
	Galileo E1	Working temperature	-40°C+85°C		
	GLONASS G1	Storage temperature	-40°C+90°C		
	QZSS	Electrical specifications			
	SBAS	Power supply voltage	1.8-3.6V		
Positioning Accuracy	Single-point positioning accuracy: <2 m	LNA power supply			
	Speed accuracy: 0.1 m/s	Power consumption	MX67	Acquisition:	141mW
TTFF	Cold start: <28 s			Tracking:	95.7mW
	Hot start: <1 s		MX67E	Acquisition:	53.42mW
	Warm start <10 s			Tracking:	44mW
	Reacquisition <1 s				
Positioning mode	Multi-system joint positioning (default)	Data format	NMEA0183		
	Single-system standalone positioning				
Sensitivity (GNSS)	Tracking: -165 dBm	Initialization time	0.1s		
	Cold start: -149 dBm	Initialization rate	99.90%		
	Hot start: -155 dBm	Application limitations	Dynamic range ⩽ 4g		
	Reacquisition: -159 dBm		Altitude ⩽ 18,000		
Data refresh rate	1-5 Hz, 10 Hz (customizable)		Speed ⩽ 5000/s		
Storage	FLASH				

Single-frequency single-Beidou

MX77D and MX77E are single-frequency single-Beidou positioning modules developed by Passion Way, featuring the latest generation single-Beidou chip from Icoe. These modules support the BDS B1I/B1C bands and offer high accuracy, low power consumption, and high sensitivity.

The module is designed exclusively for Beidou applications and enables single-frequency, single-point positioning with the Beidou system. It supports raw measurement output and is widely applicable in fields such as power, transportation, and communications.



Technical advantages

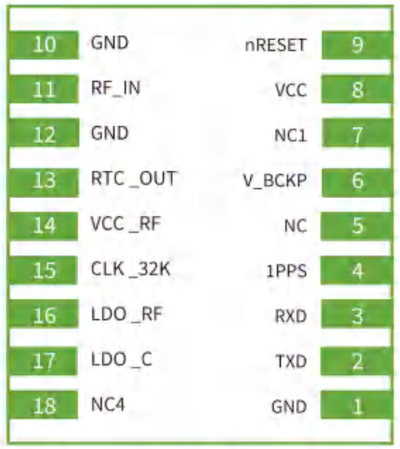
●Support Beidou-only positioning
Simultaneous support for B1I and B1C bands
●Ultra-low power consumption
The product achieves ultra-low power consumption of 46 mW, greatly extending battery life
●Ultra-high sensitivity
Acquisition sensitivity better than -148 dBm, tracking sensitivity better than -163 dBm
●Anti-interference
Built-in anti-interference technology enables real-time detection and removal of interference, withstanding total interference power of no less than -75 dBm.

Satellite channels	64 channels	Dimensions	10.1*9.7*2.3mm		
Constellation frequency bands	BDS B1I B1C	Weight	0.8g		
		Packaging	SMD surface mount		
		Working temperature	-40°C+85°C		
		Storage temperature	-40°C+90°C		
		Electrical specifications			
		Power supply voltage	1.8-3.6V		
Positioning Accuracy	Single-point positioning accuracy: <2 m	LNA power supply			
	Speed accuracy: 0.1 m/s	Power consumption	MX77D	Acquisition:	141mW
TTFF	Cold start: <28 s			Tracking:	95.7mW
	Hot start: <1 s		MX77E	Acquisition:	53.42mW
	Warm start <10 s			Tracking:	44mW
	Reacquisition <1 s				
PPS	20 ns	Data format	NMEA0183		
Positioning mode	Standalone Beidou positioning				
Sensitivity (BDS)	Tracking: -163 dBm	Initialization time	0.1s		
	Cold start: -148 dBm	Initialization rate	99.90%		
	Hot start: -155 dBm	Application limitations	Dynamic range ⩽ 4g		
	Reacquisition: -156 dBm		Altitude ⩽ 18,000		
Data refresh rate	1~5 Hz, 10 Hz (customizable)		Speed ⩽ 5000/s		
Storage	FLASH				

MX226

MX226 is a next-generation single-frequency, multi-system meter-level positioning module independently developed by Passion Way. It supports simultaneous tracking of BDS B1I/B1C*, GPS L1, GLONASS L1, Galileo E1, QZSS L1, and other signal bands, enabling multi-system integrated positioning.

This module features a compact footprint of 9.7 mm × 10.1 mm, uses SMT pads, and supports standard pick-and-place and fully automated reflow soldering integration. This module is widely used in navigation and positioning applications such as walkie-talkies, handheld devices, and bicycles.



Technical advantage

●Single-frequency, multi-system
Support joint positioning with BDS, GPS, Galileo, GLONASS, and QZSS systems simultaneously

●Meter-level positioning
Support on-chip single-frequency multi-system positioning calculation, with positioning accuracy up to 2 m.

●Strong real-time anti-interference capability
Built-in wideband and narrowband anti-interference technology enables real-time detection and removal of wideband and narrowband interference, with total interference resistance of no less than -75 dBm.

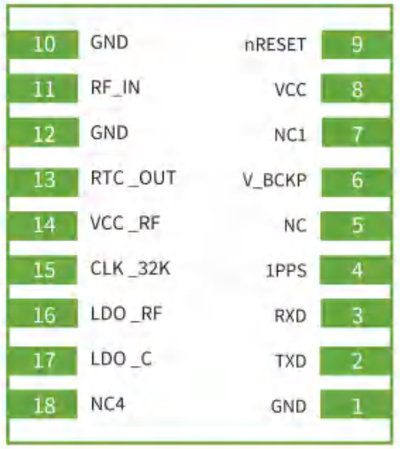
●High performance
Integrated with Unicore UC6226 automotive-grade chip

Satellite channels	64 channels	Dimensions	9.7mm*10.1mm*2.3mm
Constellation frequency bands	BDS B1I B1C*	Weight	0.8g
	GPS L1	Packaging	SMD surface mount
	GLONASS L1	Working temperature	-40°C+85°C
	Galileo E1	Storage temperature	-40°C+90°C
	QZSS L1	Electrical specifications	
		Power supply voltage	2.7-3.6V
Positioning Accuracy	Positioning Accuracy: <2m	LNA power supply	
	Speed accuracy 0.1 m/s	Power consumption	Acquisition: 115 mW @ 3.3V
TTFF	Cold start: <28 s		
	Hot start: <1 s		Tracking: 80 mW @ 3.3V
	Warm start <10 s		
	Reacquisition <1 s		
PPS	20 ns	Data format	NMEA0183
Positioning mode	GNSS		
Sensitivity (BDS)	Tracking: -165 dBm	Initialization time	<1s
	Cold start: -149 dBm	Initialization rate	99.90%
	Hot start: -156 dBm	Application limitations	Dynamic range ⩽ 4g
	Reacquisition: -159 dBm		Altitude ⩽ 18,000
Data refresh rate	1-5HZ		Speed ⩽ 515 m/s
Storage	FLAST		Compliant with JEDEC standards, ROHS, and REACH requirements

MX58K dual-frequency all-system RTK positioning module

MX58K is a low-cost, dual-frequency, multi-system centimeter-level RTK positioning module developed by Passion Way. It adopts a 9.7*10.1 mm standard packaging and is equipped with a high-performance CPU, supporting centimeter-level positioning accuracy at update rates of 1-5 Hz.

Thanks to its outstanding positioning accuracy and excellent multipath suppression capability, this module can maintain decimeter-level positioning even in complex urban environments and is widely applicable to shared bicycles, handheld devices, safety helmets, scooters, and other fields.



Technical advantage

●Multi-system, multi-frequency
Support BDS B1I/B1C*/B2a/B2b*, GPS L1/L5, GLONASS L1, Galileo E1/E5a, QZSS L1/L5 and other frequency bands

●High precision
Support on-chip RTK positioning calculation, with positioning accuracy up to 1 cm

●Strong anti-interference capability
Built-in narrowband anti-interference technology, capable of suppressing interference up to -60 dBm

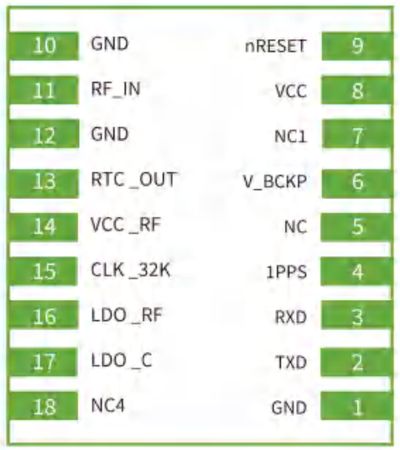
●Support active antenna detection
Integrated antenna detection circuit supports reporting of antenna short circuit, open circuit, and insertion events

●Packaging type
LCC: 9.7 × 10.1 × 2.4 (mm), tape and reel packaging

Satellite channels	94 channels	Dimensions	10.1*9.7*2.3mm
Constellation frequency bands	BDS B1I B1C B2a B2b*	Weight	0.8g
	GPS L1/L5	Packaging	SMD surface mount
	GLONASS LI	Working temperature	-40°C+85°C
	Galileo E1/E5a	Storage temperature	-40°C+90°C
	QZSS L1/L5	Electrical specifications	
	NAVIC	Power supply voltage	2.7-3.6V
Positioning Accuracy	RTK positioning <1 cm + 1 ppm	LNA power supply	
	PVT<1m	Power consumption	Acquisition: 100 mW
TTFF	Cold start: <28 s		
	Hot start: <1 s		Tracking: 100 mW
	Warm start <10 s		
	Reacquisition <1 s		
PPS	20 ns	Data format	NMEA0183
Positioning mode	GNSS		Support raw data output
Sensitivity (BDS)	Tracking: -165 dBm		<10s
	Cold start: -148 dBm		99.90%
	Hot start: -155 dBm	Application limitations	Dynamic range ⩽ 4g
	Reacquisition: -156 dBm		Altitude ⩽ 18,000
Data refresh rate	1~5 Hz, 10 Hz (customizable)		Speed ⩽ 515 m/s
Storage	FLASH		Compliant with JEDEC standards, ROHS, and REACH requirements

MX288B

MX288B is an ultra-low power RTK high-precision module developed by Passion Way. This module is designed with the latest generation ultra-low power RF baseband and high-precision algorithm integrated GNSS SoC chip from Icoe, featuring a built-in high-performance CPU and integrated dual-precision floating-point processor. Manufactured using a 22nm low-power process, it is capable of providing positioning output at 10Hz, and while supporting RTK positioning, power consumption can be as low as 40mW. It is suitable for high-precision navigation and positioning applications such as shared bicycles, drones, lawn mowers, precision agriculture, surveying and mapping, and intelligent driving.



Technical advantages

●Multi-system, multi-frequency
Support BDS B1I/B1C*/B2a/B2b*, GPS L1/L5, GLONASS L1, Galileo E1/E5a, QZSS L1/L5 and other frequency bands.

●High precision
Support on-chip RTK positioning calculation, with positioning accuracy up to 1 cm

●Strong anti-interference capability
Built-in narrowband anti-interference technology, capable of suppressing interference up to -75dBm.

●Support active antenna detection
Integrated antenna detection circuit supports reporting of antenna short circuit, open circuit, and insertion events

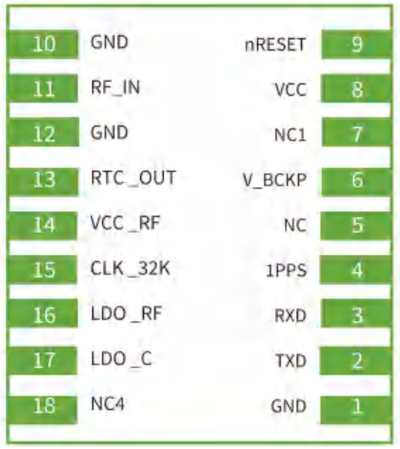
●Packaging type
LCC: 9.7 × 10.1 × 2.4 (mm), tape and reel packaging

Satellite channels	94 channels	Dimensions	10.1*9.7*2.4mm
Constellation frequency bands	BDS B1I B1C B2a B2b*	Weight	0.8g
	GPS L1/L5	Packaging	SMD surface mount
	GLONASS LI	Working temperature	-40°C+85°C
	Galileo E1/E5a	Storage temperature	-40°C+90°C
	QZSS L1/L5	Electrical specifications	
	NAVIC	Power supply voltage	1.8V
Positioning Accuracy	RTK positioning accuracy <1cm	LNA power supply	
	Speed accuracy 0.1 m/s	Power consumption	Acquisition: 54 mW
TTFF	Cold start: <28 s		
	Hot start: <1 s		Tracking: 40 mW
	Warm start <10 s		
	Reacquisition <1 s		
PPS	20 ns	Data format	NMEA0183
Positioning mode	GNSS		Support raw data output
Sensitivity (BDS)	Tracking: -165 dBm	Initialization time	<10s
	Cold start: -148 dBm	Initialization rate	99.90%
	Hot start: -155 dBm	Application limitations	Dynamic range ⩽ 4g
	Reacquisition: -156 dBm		Altitude ⩽ 18,000
Data refresh rate	1-10HZ		Speed ⩽ 515 m/s
Storage	FLASH		Compliant with JEDEC standards, ROHS, and REACH requirements

MX58A decimeter-level positioning module

MX58A is a low-cost, dual-frequency, multi-system decimeter-level positioning module developed by Passion Way. It adopts a 9.7 × 10.1 mm standard packaging and features a high-performance CPU, supporting decimeter-level positioning accuracy at a 10 Hz update rate.

With outstanding positioning accuracy and excellent multipath suppression capability, this module maintains decimeter-level performance in various complex urban environments. It is widely applicable to shared bicycles, handheld devices, safety helmets, scooters, drones, and other fields.



Technical advantages

●Multi-system, multi-frequency
Support frequency bands including BDS B1I/B1C*/B2a/B2b*, GPS L1/L5, GLONASS L1, Galileo E1/E5a, and QZSS L1/L5.

●Decimeter-level positioning
Support dual-frequency, multi-system on-chip positioning calculation, with positioning accuracy up to 80 cm.

●Strong anti-interference capability
Built-in narrowband anti-interference technology, capable of suppressing interference up to -60 dBm

●Support active antenna detection
Integrated antenna detection circuit supports reporting of antenna short circuit, open circuit, and insertion events

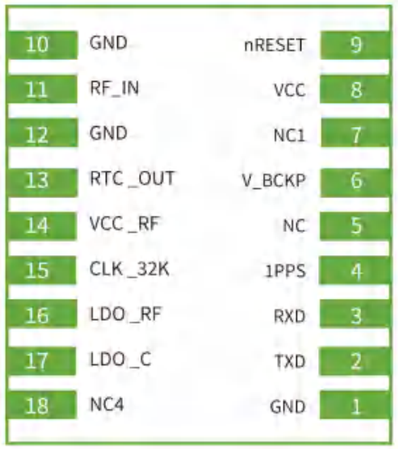
●Packaging type
LCC: 9.7 × 10.1 × 2.4 (mm), tape and reel packaging

Satellite channels	94 channels	Dimensions	10.1*9.7*2.4mm
Constellation frequency bands	BDS B1I B1C B2a B2b*	Weight	0.8g
	GPS L1/L5	Packaging	SMD surface mount
	GLONASS L1	Working temperature	-40°C+85°C
	Galileo E1/E5a	Storage temperature	-40°C+90°C
	QZSS L1/L5	Electrical specifications	
	NAVIC	Power supply voltage	2.7-3.6V
Positioning Accuracy	Positioning accuracy: <80cm	LNA power supply	
	Speed accuracy 0.1 m/s	Power consumption	Acquisition: 100 mW
TTFF	Cold start: <28 s		
	Hot start: <1 s		Tracking: 100 mW
	Warm start <10 s		
	Reacquisition <1 s		
PPS	20 ns	Data format	NMEA0183
Positioning mode	GNSS		
Sensitivity (BDS)	Tracking: -165 dBm	Initialization time	<10s
	Cold start: -148 dBm	Initialization rate	99.90%
	Hot start: -155 dBm	Application limitations	Dynamic range ⩽ 4g
	Reacquisition: -156 dBm		Altitude ⩽ 18,000
Data refresh rate	1-10HZ		Speed ⩽ 515 m/s
Storage	FLASH		Compliant with JEDEC standards, ROHS, and REACH requirements

MX58B sub-meter level positioning module

MX58B is a low-cost dual-frequency multi-system sub-meter positioning module developed by Passion Way. It uses a 9.7 × 10.1 mm standard packaging and features a high-performance CPU, delivering sub-meter positioning accuracy at a 10 Hz update rate.

With outstanding positioning accuracy and excellent multipath suppression capability, this module maintains sub-meter performance even in complex urban environments. It is widely applicable to shared bicycles, handheld devices, safety helmets, scooters, drones, and other fields.



Technical advantages

●Multi-system, multi-frequency
Support BDS B1I/B1C*/B2a/B2b*, GPS L1/L5, GLONASS L1, Galileo E1/E5a, and QZSS L1/L5 frequency bands.

●Sub-meter positioning
Support dual-frequency, multi-system on-chip positioning calculations, achieving accuracy up to 1.5 meters.

●Strong anti-interference capability
Built-in narrowband anti-interference technology, capable of suppressing interference up to -60 dBm

●Support active antenna detection
Integrated antenna detection circuit supports reporting of antenna short circuit, open circuit, and insertion events

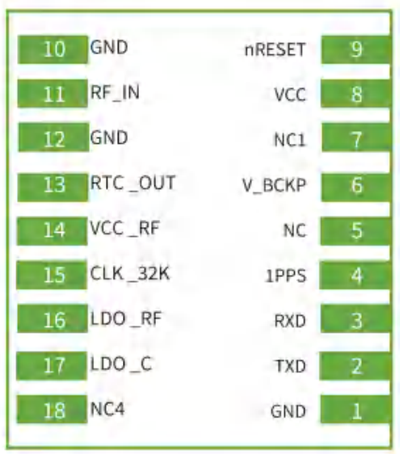
●Packaging type
LCC: 9.7 × 10.1 × 2.4 (mm), tape and reel packaging

Satellite channels	94 channels	Dimensions	10.1*9.7*2.3mm
Constellation frequency bands	BDS B1I BIC B2a B2b*	Weight	0.8g
	GPS L1/L5	Packaging	SMD surface mount
	GLONASS L1	Working temperature	-40°C+85°C
	Galileo E1/E5a	Storage temperature	-40°C+90°C
	QZSS L1/L5	Electrical specifications	
	NAVIC	Power supply voltage	2.7-3.6V
Positioning Accuracy	Positioning Accuracy: 1.5m	LNA power supply	
	Speed accuracy 0.1 m/s	Power consumption	Acquisition: 100 mW
TTFF	Cold start: <28 s		Tracking: 100 mW
	Hot start: <1 s		
	Warm start <10 s		
	Reacquisition <1 s		
PPS	20ns	Data format	NMEA0183
Positioning mode	GNSS		
Sensitivity (BDS)	Tracking: -165 dBm	Initialization time	<10s
	Cold start: -148 dBm	Initialization rate	99.90%
	Hot start: -155 dBm	Application limitations	Dynamic range ⩽ 4g
	Reacquisition: -156 dBm		Altitude ⩽ 18,000
Data refresh rate	1-10HZ		Speed ⩽ 515 m/s
Storage	FLASH		Compliant with JEDEC standards, ROHS, and REACH requirements

MX258B sub-meter ultra-low power positioning module

MX258B is an ultra-low power dual-frequency multi-system sub-meter positioning module developed by Passion Way. It uses a 9.7 × 10.1 mm standard packaging and features a high-performance CPU, delivering sub-meter positioning accuracy at a 10 Hz update rate. Ultra-low power consumption of less than 40 mW

With outstanding positioning accuracy and excellent multipath suppression capability, this module maintains sub-meter performance even in complex urban environments. It is widely applicable to shared bicycles, handheld devices, safety helmets, scooters, drones, and other fields.



Technical advantages

●Multi-system, multi-frequency
Support BDS B1I/B1C*/B2a/B2b*, GPS L1/L5, GLONASS L1, Galileo E1/E5a, QZSS L1/L5 and other frequency bands

●Sub-meter positioning
Support dual-frequency, multi-system on-chip positioning calculations, achieving accuracy up to 1.5 meters.

●Strong anti-interference capability
Built-in narrowband anti-interference technology, capable of suppressing interference up to -75dBm.

●Support active antenna detection
Integrated antenna detection circuit supports reporting of antenna short circuit, open circuit, and insertion events

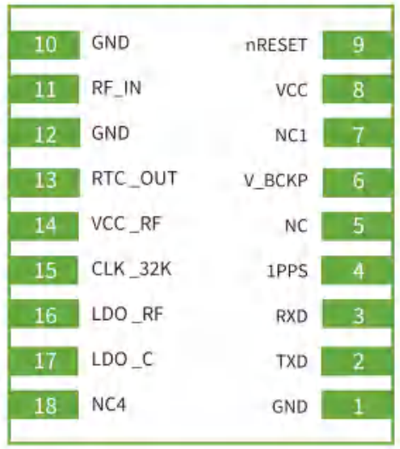
●Packaging type
LCC: 9.7 × 10.1 × 2.4 (mm), tape and reel packaging

Satellite channels	94 channels	Dimensions	10.1*9.7*2.3mm
Constellation frequency bands	BDS B1I BIC B2a B2b*	Weight	0.8g
	GPS L1/L5	Packaging	SMD surface mount
	GLONASS L1	Working temperature	-40°C+85°C
	Galileo E1/E5a	Storage temperature	-40°C+90°C
	QZSS L1/L5	Electrical specifications	
	NAVIC	Power supply voltage	1.8V
Positioning Accuracy	Positioning Accuracy: 1.5m	LNA power supply	
	Speed accuracy 0.1 m/s	Power consumption	Acquisition: 54 mW
TTFF	Cold start: <28 s		Tracking: 40 mW
	Hot start: <1 s		
	Warm start < 0s		
	Reacquisition <1 s		
PPS	20ns	Data format	NMEA0183
Positioning mode	GNSS		
Sensitivity (BDS)	Tracking: -165 dBm	Initialization time	<10s
	Cold start: -148 dBm	Initialization rate	99.90%
	Hot start: -155 dBm	Application limitations	Dynamic range ⩽ 4g
	Reacquisition: -156 dBm		Altitude ⩽ 18,000
Data refresh rate	1-10HZ		Speed ⩽ 515 m/s
Storage	FLASH		Compliant with JEDEC standards and ROHS

MX18K single-Beidou dual-frequency RTK positioning module

MX18K is a next-generation, dual-frequency, single-Beidou centimeter-level RTK positioning module independently developed by Passion Way. It can simultaneously track BDS B1I/B1C/B2a/B2b* and other signal bands. This module is designed based on the Icoe dual-frequency, high-precision, single-Beidou positioning chip CC0018. It supports reception and processing of Beidou system signals and is suitable for a wide range of industry applications.

This module supports positioning only with the Beidou system and is widely used in high-precision navigation and positioning applications such as shared bicycles, handheld devices, and industrial wearable devices.



Technical advantages

●Support dual-frequency single-Beidou parallel acquisition and tracking technology

Capable of receiving and processing Beidou system satellite signals on BDS B1I/B1C/B2a frequency bands;

●Support Beidou SBAS solutions, and various positioning modes

Support on-chip dual-frequency single-Beidou RTK positioning calculation, with positioning accuracy up to 1 cm + 1 ppm

●Low power consumption

Dual-frequency single-Beidou RTK tracking power consumption as low as 100 mW

●Excellent real-time anti-jamming capability

Independent tracking for each satellite frequency and -60 dBm narrowband anti-interference technology

●Packaging type

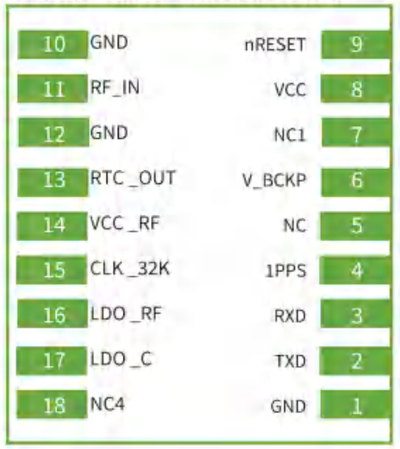
LCC: 10.1 × 9.7 × 2.4 (mm), tape and reel packaging

Satellite channels	96 channels	Dimensions	10.1*9.7*2.4mm
Constellation frequency bands	BDS B1I B1C B2a B2b*	Weight	0.8g
		Packaging	SMD surface mount
		Working temperature	-40°C+85°C
		Storage temperature	-40°C+90°C
		Electrical specifications	
		Power supply voltage	2.7-3.6V
Positioning Accuracy	RTK<1cm PVT<1m	LNA power supply	
	Speed accuracy: 0.1 m/s	Power consumption	Acquisition: 100 mW
TTFF	Cold start: <28 s		
	Hot start: <1 s		Tracking: 100 mW
	Warm start <10 s		
	Reacquisition <1 s		
PPS	20 ns	Data format	NMEA0183
Positioning mode	Standalone Beidou positioning		
Sensitivity (BDS)	Tracking: -163 dBm	Initialization time	<10s
	Cold start: -147 dBm	Initialization rate	99.90%
	Hot start: -155 dBm	Application limitations	Dynamic range ⩽ 4g
	Reacquisition: -156 dBm		Altitude ⩽ 18,000
Data refresh rate	1~5 Hz, 10 Hz (customizable)		Speed ⩽ 515 m/s
Storage	FLASH		

MX18A single-Beidou decimeter-level positioning module

MX18A is a new-generation dual-frequency single-Beidou decimeter-level positioning module independently developed by Passion Way, capable of simultaneously tracking BDS B1I/B1C/B2a/B2b* signal frequencies. This module is designed based on the Icoe dual-frequency, high-precision, single-Beidou positioning chip CC0018Q. It supports reception and processing of Beidou system signals and is suitable for a wide range of industry applications.

This module supports only Beidou system positioning and is widely used in high-precision navigation and positioning applications such as shared bicycles, handheld devices, and industrial wearable devices.



Technical advantages

●Support dual-frequency single-Beidou parallel acquisition and tracking technology

Capable of receiving and processing Beidou system satellite signals on BDS B1I/B1C/B2a frequency bands; • Support Beidou SBAS solutions, and various positioning modes

Support on-chip dual-frequency single-Beidou positioning calculation, with positioning accuracy up to 80 cm + 1 ppm.

●Low power consumption

Dual-frequency single-Beidou tracking power consumption as low as 100 mW

●Strong real-time anti-interference capability

Independent tracking for each satellite frequency and -60 dBm narrowband anti-interference technology

●Packaging type

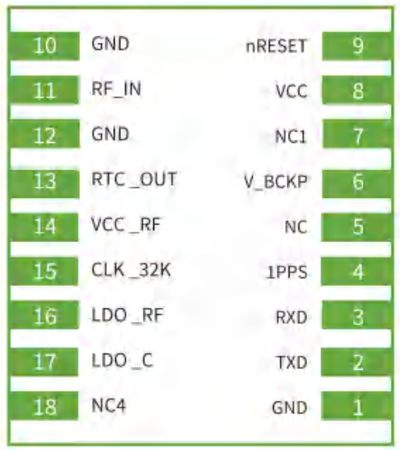
LCC: 10.1 × 9.7 × 2.4 (mm), tape and reel packaging

Satellite channel	64 channels	Dimensions	10.1*9.7*2.4mm
Constellation frequency bands	BDS B1I B1C B2a B2b*	Weight	0.8g
		Packaging	SMD surface mount
		Working temperature	-40°C+85°C
		Storage temperature	-40°C+90°C
		Electrical specifications	
		Power supply voltage	2.7-3.6V
Positioning Accuracy	A:<1m	LNA power supply	
	Speed accuracy: 0.1 m/s	Power consumption	Acquisition: 100 mW
	Cold start: <28 s		
	Hot start: <1 s		Tracking: 100 mW
	Warm start <10 s		
	Reacquisition <1 s		
PPS	20 ns	Data format	NMEA0183
Positioning mode	Standalone Beidou positioning		
Sensitivity (BDS)	Tracking: -163 dBm	Initialization time	<10s
	Cold start: -147 dBm	Initialization rate	99.90%
	Hot start: -155 dBm	Application limitations	Dynamic range ⩽ 4g
	Reacquisition: -156 dBm		Altitude ⩽ 18,000
Data refresh rate	1~5 Hz, 10 Hz (customizable)		Speed ⩽ 515 m/s
Storage	FLASH		

MX18B single-Beidou sub-meter positioning module

MX18B is a new-generation dual-frequency single-Beidou sub-meter positioning module independently developed by Passion Way, featuring a built-in ultra-low power single-Beidou chip from Icoe, capable of simultaneously tracking BDS B1I/B1C/B2a/B2b* signal frequencies. This module is designed based on the Icoe dual-frequency high-precision single-Beidou positioning chip CC0018Q, supporting the reception and processing of Beidou system signals, and is suitable for a wide range of industrial applications.

This module supports only Beidou system positioning and is widely used in high-precision navigation and positioning applications such as shared bicycles, handheld devices, and industrial wearable devices.



Technical advantages

●Support dual-frequency single-Beidou parallel acquisition and tracking technology

Capable of receiving and processing Beidou system satellite signals on BDS B1I/B1C/B2a frequency bands; • Support Beidou SBAS solutions, and various positioning modes

Support on-chip dual-frequency single-Beidou positioning calculation, with positioning accuracy up to 1.5 m + 1 ppm.

●Ultra-compact packaging

The smallest packaging for dual-frequency single-Beidou modules. The smallest dual-frequency module on the market

●Strong real-time anti-interference capability

Independent tracking for each satellite frequency and -60 dBm narrowband anti-interference technology

●Packaging type

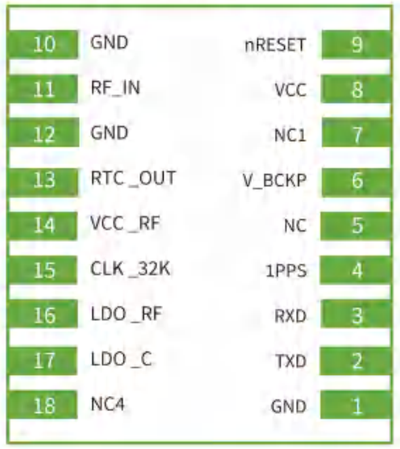
LCC: 10.1 × 9.7 × 2.4 (mm), tape and reel packaging

Satellite channels	64 channels	Dimensions	10.1*9.7*2.4 mm
Constellation frequency bands	BDS B11 B1C B2a B2b*	Weight	0.8g
		Packaging	SMD surface mount
		Working temperature	-40°C+85°C
		Storage temperature	-40°C+90°C
		Electrical specifications	
		Power supply voltage	2.7-3.6V
Positioning Accuracy	PVT positioning: 1.5 m	LNA power supply	
	Speed accuracy: 0.1 m/s	Power consumption	Acquisition: 100 mW
TTFF	Cold start < 28 s		
	Hot start: <1 s		Tracking: 100 mW
	Warm start <10 s		
	Reacquisition <1 s		
PPS	20 ns	Data format	NMEA0183
Positioning mode	Standalone single-chip positioning		
Sensitivity (BDS)	Tracking: -163 dBm	Initialization time	<10s
	Cold start: -147 dBm	Initialization rate	99.90%
	Hot start: -155 dBm	Application limitations	Dynamic range ⩽ 4g
	Reacquisition: -156 dBm		Altitude ⩽ 18,000
Data refresh rate	1~5 Hz, 10 Hz (customizable)		Speed ⩽ 515 m/s
Storage	FLASH		

MX218B single-Beidou sub-meter ultra-low power positioning module

MX218B is a dual-frequency single-Beidou module independently developed by Passion Way. This module features a high-configuration SoC chip from Icoe and comes in a 10.1 mm × 9.7 mm form factor. It utilizes advanced processes to achieve low power consumption, compact, and integrated RF baseband design. It offers ultra-high sensitivity, ultra-low power consumption, multipath resistance, strong anti-interference capability, and supports high-performance applications such as dual-frequency single-Beidou sub-meter positioning technology.

This module supports only Beidou system positioning and is widely used in high-precision navigation and positioning applications such as shared bicycles, handheld devices, and industrial wearable devices.



Technical advantages

●Support dual-frequency single-Beidou parallel acquisition and tracking technology

Support reception and processing of Beidou system satellite signals on BDS B1I/B1C/B2a frequency bands, as well as Beidou SBAS solutions.

●Support multiple positioning modes

Features both high-performance and adaptive operation modes.

●Low power consumption

Dual-frequency single-Beidou RTK tracking power consumption as low as 40 mW

●Strong real-time anti-interference capability

Independent tracking for each satellite frequency and -75 dBm narrowband anti-interference technology.

●Packaging type

LCC: 10.1 × 9.7 × 2.4 (mm), tape and reel packaging

Satellite channels	96 channels	Dimensions	10.1*9.7*2.4mm
Constellation frequency bands	BDS B1I B1C B2a B2b*	Weight	0.8g
		Packaging	SMD surface mount
		Working temperature	-40°C+85°C
		Storage temperature	-40°C+90°C
		Electrical specifications	
		Power supply voltage	1.8V
Positioning Accuracy	PVT positioning <1.5 m	LNA power supply	
	Speed accuracy: 0.1 m/s	Power consumption	Acquisition: 40 mW
TTFF	Cold start: <28 s		
	Hot start: <1 s		Tracking: 40 mW
	Warm start <10 s		
	Reacquisition <1 s		
PPS	20 ns	Data format	NMEA0183
Positioning mode	Standalone Beidou positioning		
Sensitivity (BDS)	Tracking: -163 dBm	Initialization time	<10s
	Cold start: -147 dBm	Initialization rate	99.90%
	Hot start: -155 dBm	Application limitations	Dynamic range ⩽ 4g
	Reacquisition: -156 dBm		Altitude ⩽ 18,000
Data refresh rate	1~5 Hz, 10 Hz (customizable)		Speed ⩽ 515 m/s
Storage	FLASH		

Single-frequency, all-system

NQ8-61 and NQ8-16E are single-frequency, multi-system GNSS positioning modules developed by Passion Way, featuring the latest generation single-frequency chip from Icoe. They support integrated positioning with BDS, GPS, Galileo, GLONASS, and QZSS systems simultaneously, and offer low power consumption, anti-interference, and ultra-high performance characteristics.

These modules deliver a fast, accurate, high-performance positioning experience to users, and support raw measurement data output, making them suitable for a wide range of applications such as automotive positioning, personal positioning, and industrial equipment.

Technical advantages

●Single-frequency, all-system
Support single-frequency, all-system parallel acquisition and tracking technology, capable of receiving and processing satellite signals from BDS, GPS, Galileo, GLONASS, QZSS, and supporting Beidou SBAS solutions.

●Support multiple positioning modes
Support single-frequency all-system on-chip positioning calculation, with positioning accuracy up to 2 m + 1 ppm

●Strong real-time anti-interference capability
Independent tracking for each satellite system and -75 dBm narrowband anti-interference technology

●Low power consumption, compact, and integrated
LCC: 16 × 12.2 × 2.1 (mm), tape and reel packaging

Satellite channels	68 channels	Dimensions	16*12.2*2.1mm		
Constellation frequency bands	BDS:B1U B1C*	Weight	0.8g		
	GPS:L1C/A、L1C*	Packaging	SMD surface mount		
	GLONASS :G1	Working temperature	-40°C+85°C		
	Galileo :E1B/C	Storage temperature	-40°C+90°C		
	QZSS: L1C/A	Electrical specifications			
		Power supply voltage	1.8-3.3V		
Positioning Accuracy	Single-point positioning accuracy: <2 m	LNA power supply Power consumption			
	Speed accuracy: 0.1 m/s		NQ8-61	Acquisition:	141mw
TTFF	Cold start < 27 s			Tracking:	95mW
	Hot start: <1 s		NQ8-16E	Acquisition:	54mw
	Warm start <10 s			Tracking:	44mw
	Reacquisition <1 s				
PPS	20 ns	Data format	NMEA0183		
Positioning mode	GNSS				
Sensitivity	Tracking: -165 dBm	Initialization time	0.1s		
	Cold start: -149 dBm	Initialization rate	99.90%		
	Hot start: -159 dBm	Application limitations	Dynamic range ⩽ 4g		
	Reacquisition: -159 dBm		Altitude ⩽ 18,000		
Data refresh rate	1~5HZ		Speed ⩽ 5000/s		
Storage	ROM				

Single-frequency single-Beidou

NQ8-61D and NQ8-17E are single-frequency, single-Beidou positioning modules developed by Passion Way, featuring the latest generation single-Beidou chip from Icoe. Supporting BDS B1I/B1C bands, they offer high accuracy, low power consumption, and high sensitivity.

These modules are designed specifically for Beidou applications, providing single-frequency, standalone Beidou positioning with raw observation data output. They are widely applicable in power, transportation, and communications sectors, as well as for automotive positioning, personal positioning, and various types of industry equipment.

Technical advantages

●Support Beidou-only positioning
Support both B1I and B1C frequency bands simultaneously and Beidou satellite SBAS solutions

●Ultra-low power consumption
The product achieves ultra-low power consumption of 46 mW, greatly extending battery life

●Ultra-high sensitivity
Acquisition sensitivity better than -148 dBm; tracking sensitivity better than -163 dBm

●Strong real-time anti-interference capability
Independent tracking for each satellite system and -75 dBm narrowband anti-interference technology

●Packaging type
LCC: 16 × 12.2 × 2.1 (mm), tape and reel packaging

Satellite channels	68 channels	Dimensions	16*12.2*2.1mm		
Constellation frequency bands	BDS:B1U B1C	Weight	0.8g		
		Packaging	SMD surface mount		
		Working temperature	-40°C+85°C		
		Storage temperature	-40°C+90°C		
		Electrical specifications			
		Power supply voltage	1.8-3.6V		
Positioning Accuracy	Single-point positioning accuracy: <2 m	LNA power supply			
	Speed accuracy: 0.1 m/s	Power consumption	NQ8-61D	Acquisition:	141mW
TTFF	Cold start < 27 s			Tracking:	95mW
	Hot start: <1 s		NQ8-17E	Acquisition:	54mW
	Warm start <10 s			Tracking:	44mW
	Reacquisition <1 s				
PPS	20 ns	Data format	NMEA0183		
Positioning mode	Standalone Beidou positioning		Support raw data output		
Sensitivity	Tracking: -163 dBm	Initialization time	0.1s		
	Cold start: -148 dBm	Initialization rate	99.90%		
	Hot start: -159 dBm	Application limitations	Dynamic range ⩽ 4g		
	Reacquisition: -159 dBm		Altitude ⩽ 18,000		
Data refresh rate	1HZ		Speed ⩽ 5000/s		
Storage	ROM				

Single-frequency, all-system

NQ8-67 and NQ8-67E are single-frequency, multi-system GNSS positioning modules developed by Passion Way, featuring the latest generation single-frequency chip from Icoe. Capable of supporting integrated positioning with BDS, GPS, Galileo, GLONASS, and QZSS systems, they offer advantages such as low power consumption, high performance, and outstanding acquisition capability.

These modules support all-system positioning and are suitable for automotive positioning, personal positioning, industry equipment, and various other application scenarios.

Technical advantages

●Designed for global applications, supporting multi-constellation joint positioning
Support integrated positioning with BDS, GPS, Galileo, GLONASS, and QZSS multi-systems, as well as Beidou satellite SBAS solutions.

●Ultra-low power consumption
The product achieves ultra-low power consumption of 46 mW, greatly extending battery life

●Ultra-high sensitivity
Acquisition sensitivity better than -149 dBm, tracking sensitivity better than -165 dBm

●Strong real-time anti-interference capability
Independent tracking for each satellite system and -75 dBm narrowband anti-interference technology

●Packaging type
LCC: 16 × 12.2 × 2.1 (mm), tape and reel packaging

Satellite channels	68 channels	Dimensions	16*12.2*2.1mm		
Constellation frequency bands	BDS:B1U B1C*	Weight	0.8g		
	GPS :L1C/As L1C*	Packaging	SMD surface mount		
	GLONASS :G1	Working temperature	-40°C+85°C		
	Galileo :E1B/C	Storage temperature	-40°C+90°C		
	QZSS :L1C/A	Electrical specifications			
		Power supply voltage	1.8-3.6V		
Positioning Accuracy	Single-point positioning accuracy: <2 m	LNA power supply			
	Speed accuracy: 0.1 m/s	Power consumption	NQ8-67	Acquisition:	150mW
TTFF	Cold start < 27 s			Tracking:	80mW
	Hot start: <1 s		NQ8-67E	Acquisition:	54mW
	Warm start <10 s			Tracking:	44mW
	Reacquisition <1 s				
PPS	20 ns	Data format	NMEA0183		
Positioning mode	GNSS		Support raw data output		
Sensitivity	Tracking: -165 dBm	Initialization time	0.1s		
	Cold start: -149 dBm	Initialization rate	99.90%		
	Hot start: -159 dBm	Application limitations	Dynamic range ⩽ 4g		
	Reacquisition: -159 dBm		Altitude ⩽ 18,000		
Data refresh rate	1~5HZ		Speed ⩽ 5000/s		
Storage	FLASH				

Single-frequency single-Beidou

NQ8-77D and NQ8-77E are single-frequency, single-Beidou positioning modules developed by Passion Way, featuring the latest generation single-Beidou chip from Icoe, supporting BDS B1I/B1C bands, with high accuracy, low power consumption, and high sensitivity.

These modules are dedicated to Beidou applications, supporting single-frequency, standalone Beidou positioning with raw measurement data output. They are suitable for Beidou positioning in various application scenarios such as vehicle positioning, personal positioning, and industrial equipment.

Technical advantages

●Support Beidou-only positioning

Support both B1I and B1C frequency bands simultaneously and Beidou satellite SBAS solutions

●Ultra-low power consumption

The product achieves ultra-low power consumption of 46 mW, greatly extending battery life

●Ultra-high sensitivity

Acquisition sensitivity better than -148 dBm, tracking sensitivity better than -163 dBm

●Strong real-time anti-interference capability

Independent tracking for each satellite system and -75 dBm narrowband anti-interference technology

●Packaging type

LCC: 16 × 12.2 × 2.1 (mm), tape and reel packaging

Satellite channels	68 channels	Dimensions	16*12.2*2.1mm		
Constellation frequency bands	BDS:B1U B1C	Weight	0.8g		
		Packaging	SMD surface mount		
		Working temperature	-40°C+85°C		
		Storage temperature	-40°C+90°C		
		Electrical specifications			
		Power supply voltage	1.8-3.6V		
Positioning Accuracy	Single-point positioning accuracy: <2 m	LNA power supply			
	Speed accuracy: 0.1 m/s	Power consumption	NQ8-77D	Acquisition:	150mW
TTFF	Cold start < 27 s			Tracking:	80mW
	Hot start: <1 s		NQ8-77E	Acquisition:	53mW
	Warm start <10 s			Tracking:	44mW
	Reacquisition <1 s				
PPS	20 ns	Data format	NMEA0183		
Positioning mode	BDS				
Sensitivity	Tracking: -163 dBm	Initialization time	0.1s		
	Cold start: -148 dBm	Initialization rate	99.90%		
	Hot start: -159 dBm	Application limitations	Dynamic range ≤ 4g		
	Reacquisition: -159 dBm		Altitude ≤ 18,000		
Data refresh rate	1~5HZ		Speed ≤ 515 m/s		
Storage	FLASH				

NQ8-UM226 single-frequency all-system positioning module

NQ8-UM226 is a new generation single-frequency, all-system meter-level positioning module independently developed by Passion Way, featuring a built-in Unicore chip and supporting simultaneous tracking of BDS, GPS, Galileo, GLONASS, and QZSS. This module is designed based on the Unicore single-frequency all-system positioning chip UC6226, supporting the reception and processing of Beidou system signals, and is suitable for a wide range of industry applications.

These modules support all-system positioning and are suitable for automotive positioning, personal positioning, industry equipment, and various other application scenarios.

Technical advantages

●Designed for global applications, supporting multi-constellation joint positioning

Support single-frequency all-system parallel acquisition and tracking technology, enabling reception and processing of GNSS satellite signals such as BDS, GPS, Galileo, GLONASS, and QZSS, and supporting Beidou SBAS solutions.

●Support multiple positioning modes

Support single-frequency all-system on-chip positioning calculation, with positioning accuracy up to 2.5 m + 1 ppm

●Strong real-time anti-interference capability

Independent tracking for each satellite system and -60 dBm narrowband anti-interference technology.

●Packaging type

LCC: 16 × 12.2 × 2.1 (mm), tape and reel packaging

Satellite channels	64 channels	Dimensions	16*12.2*2.1mm		
Constellation frequency bands	BDS:B1U B1C*	Weight	0.8g		
	GPS:L1C/AN L1C*	Packaging	SMD surface mount		
	GLONASS:G1	Working temperature	-40°C+85°C		
	Galileo :E1B/C	Storage temperature	-40°C+90°C		
	QZSS:L1C/A	Electrical specifications			
		Power supply voltage	3.3-3.6V		
Positioning Accuracy	Single-point positioning accuracy: <2 m	LNA power supply			
	Speed accuracy: 0.1 m/s	Power consumption	NQ8-UM226	Acquisition: 80 mW	
TTFF	Cold start: <28 s			Tracking: 80 mW	
	Hot start: <1 s				
	Warm start <10 s				
	Reacquisition <1 s				
PPS	20 ns	Data format	NMEA0183		
Positioning mode	GNSS				
Sensitivity	Tracking: -165 dBm	Initialization time	0.1s		
	Cold start: -148 dBm	Initialization rate	99.90%		
	Hot start: -154 dBm	Application limitations	Dynamic range ≤ 4g		
	Reacquisition: -157 dBm		Altitude ≤ 18,000		
Data refresh rate	1~10HZ		Speed ≤ 5000/s		
Storage	FLASH				

NQ9-58A decimeter-level positioning module

NQ9-58A is a new-generation dual-frequency, all-system decimeter-level positioning module independently developed by Passion Way. It can simultaneously track signal frequency bands such as BDS B1I/B1C*/B2a, GPS L1/L5, GLONASS L1, Galileo E1/E5a, and QZSS L1/L5. This module is based on the Icoe dual-frequency high-precision all-system positioning chip, is compatible with PVT sentence design, and is suitable for industrial applications such as drones.

The module supports dual-frequency all-system positioning and is widely used in high-precision navigation and positioning fields such as shared bicycles, handheld devices, and industrial wearable equipment.

Technical advantages

●Multi-system, multi-frequency
Support BDS B1I/B1C*/B2a/B2b*, GPS L1/L5, GLONASS L1, Galileo E1/E5a, and QZSS L1/L5 frequency bands.

●Decimeter-level positioning
Support dual-frequency, multi-system on-chip positioning calculation, with positioning accuracy up to 80 cm.

●Strong anti-interference capability
Built-in narrowband anti-interference technology, capable of suppressing interference up to -60 dBm

●Support active antenna detection
Integrated antenna detection circuit supports reporting of antenna short circuit, open circuit, and insertion events

●Packaging type
LCC: 16 × 12.2 × 2.1 (mm), tape and reel packaging

Satellite channels	96 channels	Dimensions	16*12.2*2.1mm		
Constellation frequency bands	BDS B1I/B1C*/B2a	Weight	0.8g		
	GPS L1/L5	Packaging	SMD surface mount		
	GLONASS L1	Working temperature	-40°C+85°C		
	Galileo E1/E5a	Storage temperature	-40°C+90°C		
	QZSS L1/L5	Electrical specifications			
		Power supply voltage	3.3V		
Positioning Accuracy	Single-point positioning accuracy: <0.8 m	LNA power supply			
	Speed accuracy: 0.1 m/s	Power consumption	NQ9-58A	Acquisition:	100mW
TTFF	Cold start < 24 s			Tracking:	100mW
	Hot start: <1 s				
	Warm start <10 s				
	Reacquisition <1 s				
PPS	20 ns	Data format	NMEA0183		
Positioning mode	GNSS				
Sensitivity (GNSS)	Tracking: -165 dBm	Initialization time	0.1s		
	Cold start: -148 dBm	Initialization rate	99.90%		
	Hot start: -154 dBm	Application limitations	Dynamic range ≤ 4g		
	Reacquisition: -157 dBm		Altitude ≤ 18,000		
Data refresh rate	1~10HZ		Speed ≤ 5000/s		
Storage	FLASH				

NQ9-58B sub-meter level positioning module

NQ9-58B is a new generation dual-frequency all-system sub-meter level positioning module independently developed by Passion Way. Equipped with a Icoe chip, it can simultaneously track signal bands such as BDS B1I/B1C*/B2a, GPS L1/L5, GLONASS L1, Galileo E1/E5a, and QZSS L1/L5, making it suitable for a wide variety of industrial applications.

The module supports dual-frequency all-system positioning and is widely used in high-precision navigation and positioning fields such as shared bicycles, handheld devices, and industrial wearable equipment.

Technical advantages

●Multi-system, multi-frequency
Support BDS B1I/B1C*/B2a/B2b*, GPS L1/L5, GLONASS L1, Galileo E1/E5a, QZSS L1/L5 and other frequency bands

●Sub-meter positioning
Support dual-frequency, multi-system on-chip positioning calculations, achieving accuracy up to 1.5 meters.

●Strong anti-interference capability
Built-in narrowband anti-interference technology, capable of suppressing interference up to -60 dBm

●Support active antenna detection
Integrated antenna detection circuit supports reporting of antenna short circuit, open circuit, and insertion events

●Packaging type
LCC: 16 × 12.2 × 2.1 (mm), tape and reel packaging

Satellite channels	96 channels	Dimensions	16*12.2*2.1mm		
Constellation frequency bands	BDS B1I/B1C*/B2a	Weight	0.8g		
	GPS L1/L5	Packaging	SMD surface mount		
	GLONASS L1	Working temperature	-40°C+85°C		
	Galileo E1/E5a	Storage temperature	-40°C+90°C		
	QZSS L1/L5	Electrical specifications			
		Power supply voltage	3.3V		
Positioning Accuracy	Single-point positioning accuracy: <1.5 m	LNA power supply			
	Speed accuracy: 0.1 m/s	Power consumption	NQ9-58B	Acquisition:	100mW
TTFF	Cold start < 24 s			Tracking:	100mW
	Hot start: <1 s				
	Warm start <10 s				
	Reacquisition <1 s				
PPS	20 ns	Data format	NMEA0183		
Positioning mode	GNSS				
Sensitivity (GNSS)	Tracking: -165 dBm	Initialization time	0.1s		
	Cold start: -148 dBm	Initialization rate	99.90%		
	Hot start: -154 dBm	Application limitations	Dynamic range ≤ 4g		
	Reacquisition: -157 dBm		Altitude ≤ 18,000		
Data refresh rate	1~10HZ		Speed ≤ 515 m/s		
Storage	FLASH				

NQ9-18A single-Beidou decimeter-level positioning module

NQ9-18A is a new-generation dual-frequency single-Beidou decimeter-level positioning module independently developed by Passion Way, capable of simultaneously tracking BDS B1I/B1C/B2a/B2b* signal frequencies. This module is designed based on the Icoe dual-frequency, high-precision, single-Beidou positioning chip CC0018Q. It supports reception and processing of Beidou system signals and is suitable for a wide range of industry applications.

This module supports only Beidou system positioning and is widely used in high-precision navigation and positioning applications such as shared bicycles, handheld devices, and industrial wearable devices.

Technical advantages

●Support dual-frequency single-Beidou parallel acquisition and tracking technology

Support reception and processing of Beidou system satellite signals on BDS B1I/B1C/B2a frequency bands, as well as Beidou SBAS solutions.

●Decimeter-level positioning accuracy

Support on-chip dual-frequency single-Beidou positioning calculation, with positioning accuracy up to 80 cm + 1 ppm

●Strong real-time anti-interference capability

Independent tracking for each satellite frequency and -60 dBm narrowband anti-interference technology

●Packaging type

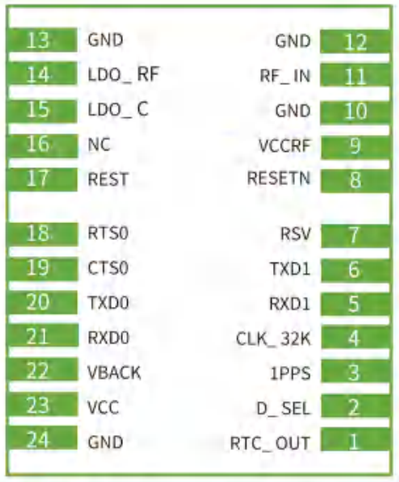
LCC: 16 × 12.2 × 2.1 (mm), tape and reel packaging

Satellite channels	96 channels	Dimensions	16*12.2*2.1mm		
Constellation frequency bands	BDS B1I B1C B2a B2b*	Weight	0.8g		
		Packaging	SMD surface mount		
		Working temperature	-40°C+85°C		
		Storage temperature	-40°C+90°C		
		Electrical specifications			
		Power supply voltage	3.3V		
Positioning Accuracy	Single-point positioning accuracy: <0.8 m	LNA power supply			
	Speed accuracy: 0.1 m/s	Power consumption	NQ9-18A	Acquisition:	100mW
TTFF	Cold start: <28 s				
	Hot start: <1 s			Tracking:	100mW
	Warm start <10 s				
	Reacquisition <1 s				
PPS	20 ns	Data format	NMEA0183		
Positioning mode	Standalone Beidou positioning				
Sensitivity (BDS)	Tracking: -163 dBm	Initialization time	0.1s		
	Cold start: -148 dBm	Initialization rate	99.90%		
	Hot start: -154 dBm	Application limitations	Dynamic range ⩽ 4g		
	Reacquisition: -157 dBm		Altitude ⩽ 18,000		
Data refresh rate	1-5HZ		Speed ⩽ 5000/s		
Storage	FLASH				

NQ9-18B single-Beidou sub-meter positioning module

NQ9-18B is a new generation dual-frequency single-Beidou sub-meter positioning module independently developed by Passion Way. It is capable of simultaneously tracking BDS B1I/B1C/B2a/B2b* signal bands. This module is designed based on the Icoe dual-frequency, high-precision, single-Beidou positioning chip CC0018Q. It supports reception and processing of Beidou system signals and is suitable for a wide range of industry applications.

This module supports only Beidou system positioning and is widely used in high-precision navigation and positioning applications such as shared bicycles, handheld devices, and industrial wearable devices.



Technical advantages

●Support dual-frequency single-Beidou parallel acquisition and tracking technology

Support reception and processing of Beidou system satellite signals on BDS B1I/B1C/B2a frequency bands, as well as Beidou SBAS solutions.

●Sub-meter positioning accuracy

Support on-chip dual-frequency single-Beidou positioning calculation, with positioning accuracy up to 1.5 m + 1 ppm

●Strong real-time anti-interference capability

Independent tracking for each satellite frequency and -60 dBm narrowband anti-interference technology

●Packaging type

LCC: 16 × 12.2 × 2.1 (mm), tape and reel packaging

Satellite channels	96 channels	Dimensions	16*12.2*2.1mm		
Constellation frequency bands	BDS B1I B1C B2a B2b*	Weight	0.8g		
		Packaging	SMD surface mount		
		Working temperature	-40°C+85°C		
		Storage temperature	-40°C+90°C		
		Electrical specifications			
		Power supply voltage	3.3V		
Positioning Accuracy	Single-point positioning accuracy: <1.5 m	LNA power supply			
	Speed accuracy: 0.1 m/s	Power consumption	NQ9-18B	Acquisition:	100mW
TTFF	Cold start: <28 s				
	Hot start: <1 s			Tracking:	100mW
	Warm start <10 s				
	Reacquisition <1 s				
PPS	20 ns	Data format	NMEA0183		
Positioning mode	Standalone Beidou positioning				
Sensitivity (BDS)	Tracking: -163 dBm	Initialization time	0.1s		
	Cold start: -148 dBm	Initialization rate	99.90%		
	Hot start: -154 dBm	Application limitations	Dynamic range ⩽ 4g		
	Reacquisition: -157 dBm		Altitude ⩽ 18,000		
Data refresh rate	1~10 Hz, 10 Hz (customizable)		Speed ⩽ 5000/s		
Storage	FLASH				

NQX-58K dual-frequency all-system RTK positioning module

NQX58K is a new-generation dual-frequency, all-system centimeter-level RTK positioning module independently developed by Passion Way, capable of simultaneously tracking signal bands such as BDS B1I/B1C*/B2a, GPS L1/L5, GLONASS L1, Galileo E1/E5a, and QZSS L1/L5. This module is designed based on the Icoe dual-frequency high-precision all-system positioning chip, supports reception and processing of all system signals, and is suitable for a wide range of industrial applications.

The module supports dual-frequency all-system positioning and is widely used in high-precision navigation and positioning fields such as shared bicycles, handheld devices, and industrial wearable equipment.

Technical advantages

●Multi-system, multi-frequency
Support BDS B1I/B1C*/B2a/B2b*, GPS L1/L5, GLONASS L1, Galileo E1/E5a, and QZSS L1/L5 frequency bands

●High precision
Support on-chip RTK positioning calculation, with positioning accuracy up to 1 cm

●Strong anti-interference capability
Built-in narrowband anti-interference technology, capable of suppressing interference up to -60 dBm

●Support active antenna detection
Integrated antenna detection circuit supports reporting of antenna short circuit, open circuit, and insertion events

●Packaging type
LCC: 16 × 12.2 × 2.1 (mm), tape and reel packaging

Satellite channels	96 channels	Dimensions	16*12.2*2.1mm		
Constellation frequency bands	BDS B1I/B1C*/B2a	Weight	0.8g		
	GPS L1/L5	Packaging	SMD surface mount		
	GLONASS L1	Working temperature	-40°C+85°C		
	Galileo E1/E5a	Storage temperature	-40°C+90°C		
	QZSS L1/L5	Electrical specifications			
		Power supply voltage	3.3V		
Positioning Accuracy	RTK <1 cm	LNA power supply			
	Speed accuracy: 0.1 m/s	Power consumption	NQX-58K	Acquisition:	100mW
TTFF	Cold start < 24 s			Tracking:	100mW
	Hot start: <1 s				
	Warm start <10 s				
	Reacquisition <1 s				
PPS	20 ns	Data format	NMEA0183		
Positioning mode	GNSS		Support raw data output		
Sensitivity (GNSS)	Tracking: -165 dBm	Initialization time	0.1s		
	Cold start: -148 dBm	Initialization rate	99.90%		
	Hot start: -154 dBm	Application limitations	Dynamic range ⩽ 4g		
	Reacquisition: -157 dBm		Altitude ⩽ 18,000		
Data refresh rate	1 ~5HZ		Speed ⩽ 5000/s		
Storage	FLASH				

NQX-28K ultra-low power RTK positioning module

NQX28K is a new-generation dual-frequency, all-system centimeter-level RTK positioning module independently developed by Passion Way, featuring a built-in ultra-low power consumption Icoe chip, and is capable of simultaneously tracking BDS B1I/B1C*/B2a, GPS L1/L5, GLONASS L1, Galileo E1/E5a, and QZSS L1/L5 signal bands. This module is designed based on the Icoe dual-frequency high-precision all-system positioning chip, supports reception and processing of all system signals, and is suitable for a wide range of industrial applications.

The module supports dual-frequency all-system positioning and is widely used in high-precision navigation and positioning fields such as shared bicycles, handheld devices, and industrial wearable equipment.

Technical advantages

●Dual-frequency, all-system
Support reception and processing of GNSS satellite signals in frequency bands including BDS B1I/B1C*/B2a, GPS L1/L5, GLONASS L1, Galileo E1/E5a, and QZSS L1/L5, and supports Beidou SBAS solutions.

●High-precision positioning
Support dual-frequency all-system on-chip RTK positioning calculation, with positioning accuracy up to 1 cm + 1 ppm

●Ultra-low power consumption
Dual-frequency all-system RTK tracking power consumption as low as 40 mW

●Strong real-time anti-interference capability
Independent tracking for each satellite frequency and -75 dBm narrowband anti-interference technology.

●Packaging type
LCC: 16 × 12.2 × 2.1 (mm), tape and reel packaging

Satellite channels	Channel	Dimensions	16*12.2*2.1mm		
Constellation frequency bands	BDS B1I/B1C*/B2a	Weight	0.8g		
	GPS L1/L5	Packaging	SMD surface mount		
	GLONASS L1 (configurable)	Working temperature	-40°C+85°C		
	Galileo E1/E5a	Storage temperature	-40°C+90°C		
	QZSS L1/L5	Electrical specifications			
		Power supply voltage	3.3V		
Positioning Accuracy	RTK positioning < 1 cm	LNA power supply			
	Speed accuracy: 0.1 m/s	Power consumption	NQX-58K	Acquisition:	50mW
TTFF	Cold start < 24 s			Tracking:	40mW
	Hot start: <1 s				
	Warm start <10 s				
	Reacquisition <1 s				
PPS	20 ns	Data format	NMEA0183		
Positioning mode	GNSS		Support raw data output		
Sensitivity (GNSS)	Tracking: -165 dBm	Initialization time	0.1s		
	Cold start: -148 dBm	Initialization rate	99.90%		
	Hot start: -154 dBm	Application limitations	Dynamic range ⩽ 4g		
	Reacquisition: -157 dBm		Altitude ⩽ 18,000		
Data refresh rate	1~5HZ		Speed ⩽ 5000/s		
Storage	FLASH				

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NQX-18K dual-frequency single-Beidou RTK positioning module

NQX18K is a next-generation, dual-frequency, single-Beidou centimeter-level RTK positioning module independently developed by Passion Way. It can simultaneously track BDS B1I/B1C/B2a/B2b* and other signal bands. This module is designed based on the Icoe dual-frequency, high-precision, single-Beidou positioning chip CC0018Q. It supports reception and processing of Beidou system signals and is suitable for a wide range of industry applications.

This module supports only Beidou system positioning and is widely used in high-precision navigation and positioning applications such as shared bicycles, handheld devices, and industrial wearable devices.

Technical advantages

●Support dual-frequency single-Beidou parallel acquisition and tracking technology

Support reception and processing of Beidou system satellite signals at BDS B1I/B1C/B2a frequency bands, and is compatible with Beidou satellite SBAS solutions.

●High precision

Support on-chip dual-frequency single-Beidou RTK positioning calculation, with positioning accuracy up to 1 cm + 1 ppm

●Strong real-time anti-interference capability

Independent tracking for each satellite frequency and -75 dBm narrowband anti-interference technology.

●Packaging type

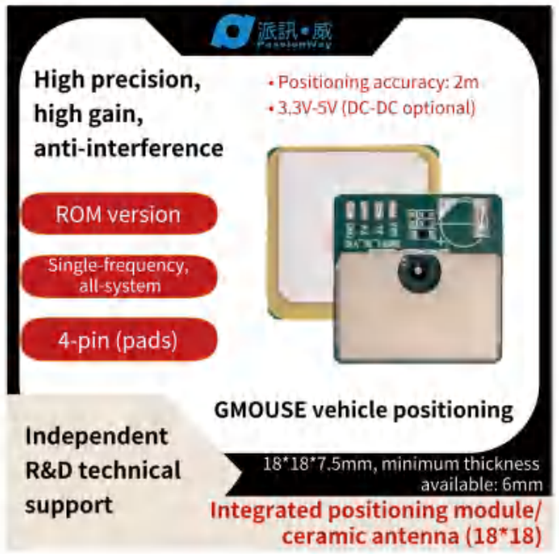
LCC: 16 × 12.2 × 2.1 (mm), tape and reel packaging

Satellite channels	96 channels	Dimensions	16*12.2*2.1mm		
Constellation frequency bands	BDS B1I B1C B2a B2b	Weight	0.8g		
		Packaging	SMD surface mount		
		Working temperature	-40°C+85°C		
		Storage temperature	-40°C+90°C		
		Electrical specifications			
		Power supply voltage	3.3V		
Positioning Accuracy	Single-point positioning accuracy: <1 m RTK positioning < 1 cm	LNA power supply			
	Speed accuracy: 0.1 m/s	Power consumption	NQX-18K	Acquisition:	100mW
TTFF	Cold start: <28 s				
	Hot start: <1 s			Tracking:	100mW
	Warm start <10 s				
	Reacquisition <1 s				
PPS	20 ns	Data format	NMEA0183		
Positioning mode	Standalone Beidou positioning		Support raw data output		
Sensitivity (BDS)	Tracking: -163 dBm	Initialization time	0.1s		
	Cold start: -148 dBm	Initialization rate	99.90%		
	Hot start: -154 dBm	Application limitations	Dynamic range ⩽ 4g		
	Reacquisition: -157 dBm		Altitude up to 8000 m		
Data refresh rate	1-5HZ		Speed ⩽ 5000 m/s		
Storage	FLASH				

GM161-18 single-frequency multi-system integrated PVT module

GM161-18 is a compact positioning terminal developed by Passion Way based on a single-frequency, multi-system positioning module, with dimensions of 18 mm in length, 18 mm in width, and a height of no more than 7.0 mm. It is internally integrated with a ceramic antenna and a single-frequency positioning module, and supports meter-level positioning accuracy at an update rate of 1-10 Hz.

With excellent positioning accuracy and superior multipath suppression capability, this module can maintain meter-level positioning performance even in complex urban environments, making it widely applicable for item tracking, pet tracking, surveying, mapping, and other fields.



Technical advantages

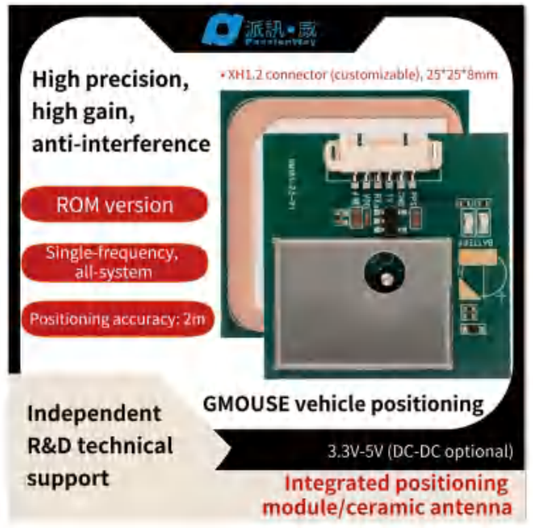
●Single-frequency multi-system
Support BDS, GPS, GLONASS, Galileo, and QZSS systems
●Meter-level positioning accuracy
Support on-chip PVT positioning calculation, with positioning accuracy up to 2 m + 1 ppm
●Strong anti-interference capability
Built-in narrowband anti-interference technology, capable of suppressing interference up to -75dBm.
●Packaging type
LCC: 18 mm (length) × 18 mm (width) × ⩽7.0 mm (height), tape and reel packaging

Satellite channels	68 channels	Dimensions	Length: 18mm Width: 18mm Height: ⩽7.0mm
Constellation frequency bands	BDS: B1I, B1C*	Communication method	TTL serial port
	GPS: L1C/AN L1C*	Connection method	Pads
	GLONASS: G1	Working temperature	-40°C+85°C
	Galileo: E1B/C	Storage temperature	-40°C+85°C
	QZSS: L1C/A	Electrical specifications	
		Power supply voltage	+3.3V ~+5V
Positioning Accuracy	PVT<2m+1ppm	LNA power supply	
		Power consumption	Acquisition: 130 mW
TTFF	Cold start: <28 s		
	Hot start: <1 s		Tracking: 95 mW
	Warm start <10 s		
	Reacquisition: <2 s		
PPS	20 ns	Data format	NMEA0183
Positioning mode	GNSS		
Gain	5 d Bic Based on 18× 18mm	Initialization time	<1s
Bandwidth	>2 0MHz2 0 MHz	Initialization rate	99.90%
Polarization	RHCP	Application limitations	Dynamic range ⩽ 4g
Impedance	50 Ohms		Altitude ⩽ 18,000
Data refresh rate	1/5/10Hz		Speed ⩽ 500 m/s
Storage	ROM		Compliant with JEDEC standards, ROHS, and REACH requirements

GM161-25 single-frequency multi-system integrated PVT module

GM161-25 is a compact positioning terminal developed by Passion Way based on a single-frequency, multi-system positioning module, with dimensions of 27 mm in length, 27 mm in width, and a height of no more than 8.8 mm. It is internally integrated with a ceramic antenna and a single-frequency positioning module, and supports meter-level positioning accuracy at an update rate of 1-10 Hz.

With excellent positioning accuracy and superior multipath suppression capabilities, this module can maintain meter-level positioning performance in a variety of complex urban environments, making it widely suitable for applications such as asset tracking, vehicle aftermarket installations, surveying, and mapping.



Technical advantages

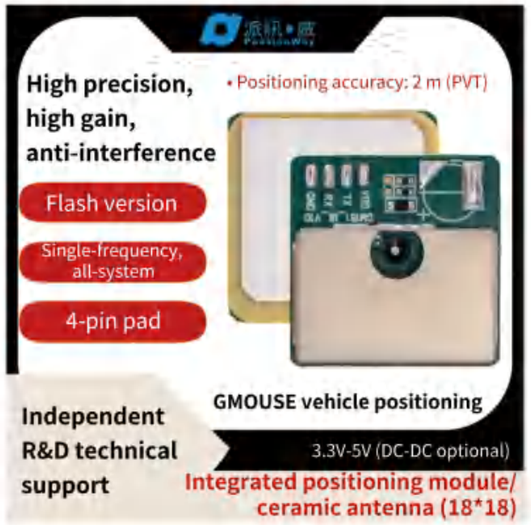
●Single-frequency, all-system
Support BDS, GPS, GLONASS, Galileo, and QZSS systems
●Meter-level positioning accuracy
Support on-chip PVT positioning calculation, with positioning accuracy up to 2 m + 1 ppm
●Strong anti-interference capability
Built-in narrowband anti-interference technology, capable of suppressing interference up to -75dBm.
●Packaging type
LCC: 27 mm (length) × 27 mm (width) × ⩽8.8 mm (height), tape and reel packaging

Satellite channels	68 channels	Dimensions	Length: 27mm Width: 27mm Height: ⩽8.8mm
Constellation frequency bands	BDS: B1I、B1C*	Weight	8g
	GPS: L1C/A, L1C*	Cable length	6-pin connector
	GLONASS: G1	Working temperature	-40°C+85°C
	Galileo: E1B/C	Storage temperature	-40°C+85°C
	QZSS: L1C/A	Electrical specifications	
		Power supply voltage	+3.3V~+5V
Positioning Accuracy	PVT<2m	LNA power supply	
		Power consumption	Acquisition: 80 mW
TTFF	Cold start: <28 s		
	Hot start: <1 s		Tracking: 80 mW
	Warm start <10 s		
	Reacquisition: <2 s		
PPS	20 ns	Data format	NMEA0183
Positioning mode	GNSS		
Gain	5 d Bic Based on 25×25mm ground plane	Initialization time	<1s
Bandwidth	>20 MHz 20 MHz	Initialization rate	99.90%
Polarization	RHCP	Application limitations	Dynamic range ⩽ 4g
Impedance	50 Ohms		Altitude ⩽ 18,000
Data refresh rate	1-5HZ		Speed ⩽ 500 m/s
Storage	ROM		Compliant with JEDEC standards, ROHS, and REACH requirements

GM167-18 single-frequency multi-system integrated PVT module

GM167-18 is a compact positioning terminal developed by Passion Way based on a single-frequency, multi-system positioning module, with dimensions of 18 mm in length, 18 mm in width, and a height of no more than 7.0 mm. It is internally integrated with a ceramic antenna and a single-frequency positioning module, and supports meter-level positioning accuracy at an update rate of 1-10 Hz.

With excellent positioning accuracy and superior multipath suppression capability, this module can maintain meter-level positioning performance in various complex urban environments. It is widely applicable for drones, lawn mowers, surveying, and mapping.



Technical advantages

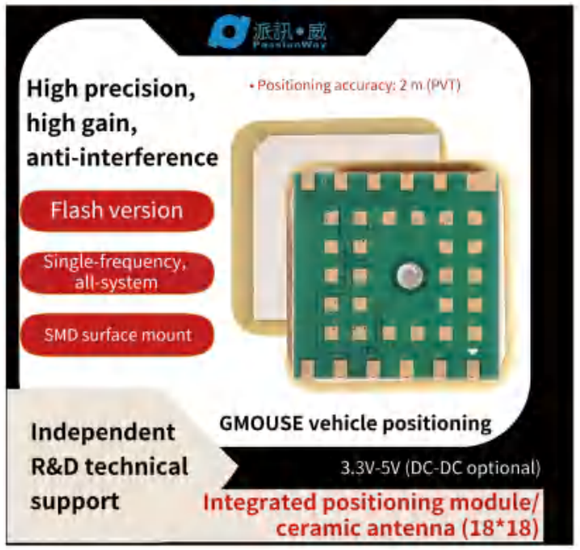
●Single-frequency multi-system
Support BDS, GPS, GLONASS, Galileo, and QZSS systems
●High precision
Support on-chip PVT positioning calculation with positioning accuracy up to 2 m.
●Strong anti-interference capability
Built-in narrowband anti-interference technology, capable of suppressing interference up to -75dBm.
●Packaging type
LCC: 18 mm (length) × 18 mm (width) × ≤7.0 mm (height), tape and reel packaging

Satellite channels	68 channels	Dimensions	Length: 18mm Width: 18mm Height: ≤7.0mm
Constellation frequency bands	BDS:B1I、B1C*	Communication method	TTL serial port
	GPS: LIC/As L1C*	Connection method	Pads
	GLONASS: G1	Working temperature	-40°C+85°C
	Galileo: E1B/C	Storage temperature	-40°C+85°C
	QZSS: L1C/A	Electrical specifications	
		Power supply voltage	+3.3V~+5V
Positioning Accuracy	PVT<2m+1ppm	LNA power supply	
TTFF	Cold start: <28 s	Power consumption	Acquisition: 130 mW
	Hot start: <1 s		Tracking: 95 mW
	Warm start <10 s		
	Reacquisition: <2 s		
PPS	20 ns	Data format	NMEA0183
Positioning mode	GNSS		
Gain	5 d Bic Based on 18×18mm ground plane	Initialization time	<1s
Bandwidth	>20 MHz 20 MHz	Initialization rate	99.90%
Polarization	RHCP	Application limitations	Dynamic range ≤ 4g
Impedance	50 Ohms		Altitude ≤ 18,000
Data refresh rate	1–5 Hz, 10 Hz (customizable)		Speed ≤ 500 m/s
Storage	FLASH		Compliant with JEDEC standards, ROHS, and REACH requirements

GMD167-18 single-frequency multi-system integrated PVT module

GMD167-18 is a compact positioning terminal developed by Passion Way based on a single-frequency, multi-system positioning module, with dimensions of 18 mm in length, 18 mm in width, and a height of no more than 7.0 mm. It is internally integrated with a ceramic antenna and a single-frequency positioning module, and supports meter-level positioning accuracy at an update rate of 1-10 Hz.

With excellent positioning accuracy and superior multipath suppression capability, this module can maintain meter-level positioning performance in a variety of complex urban environments and is widely used in vehicle aftermarket installations, consumer drones, locators, and other fields.



Technical advantages

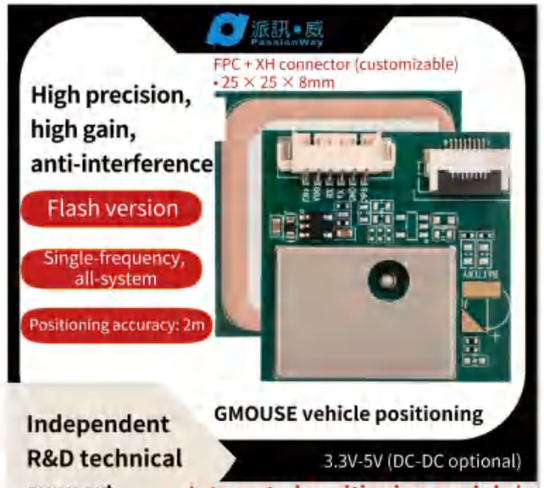
●Single-frequency, multi-system
Support BDS, GPS, GLONASS, Galileo, and QZSS systems
●High precision
Support on-chip PVT positioning calculation, with positioning accuracy up to 2 m + 1 ppm
●Strong anti-interference capability
Built-in narrowband anti-interference technology, capable of suppressing interference up to -75dBm.
●Integrated antenna
Built-in 23 dB LNA

Satellite channels	68 channels	Dimensions	Length: 18mm Width: 18mm Height: ≤7.0mm
Constellation frequency bands	BDS:B1I、B1C*	Connector	
	GPS: L1C/AN L1C*	Packaging	SMD surface mount
	GLONASS: G1	Working temperature	-40°C+85°C
	Galileo: E1B/C	Storage temperature	-40°C+85°C
	QZSS: L1C/A	Electrical specifications	
		Power supply voltage	+3.3V~+5V
Positioning Accuracy	PVT<2m+1ppm	LNA power supply	
TTFF	Cold start: <28 s	Power consumption	Acquisition: 130 mW
	Hot start: <1 s		Tracking: 92 mW
	Warm start <10 s		
	Reacquisition: <2 s		
PPS	20 ns	Data format	NMEA0183
Positioning mode	GNSS		
Gain	5 d Bic Based on 18×18mm ground plane	Initialization time	<10s
Bandwidth	>20 MHz 20 MHz	Initialization rate	99.90%
Polarization	RHCP	Application limitations	Dynamic range ≤ 4g
Impedance	50 Ohms		Altitude ≤ 18,000
Data refresh rate	PVT:1/5/10Hz		Speed ≤ 500 m/s
Storage	FLASH		Compliant with JEDEC standards, ROHS, and REACH requirements

GM167-25 single-frequency multi-system integrated PVT module

GM167-25 is a compact positioning terminal developed by Passion Way based on a single-frequency, multi-system positioning module, with dimensions of 27 mm in length, 27 mm in width, and a height of no more than 8.8 mm. It is internally integrated with a ceramic antenna and a single-frequency positioning module, and supports meter-level positioning accuracy at an update rate of 1-10 Hz.

With excellent positioning accuracy and superior multipath suppression capability, this module maintains meter-level positioning performance in a variety of complex urban environments and is widely used in automotive applications, drones, and trackers.



Technical advantages

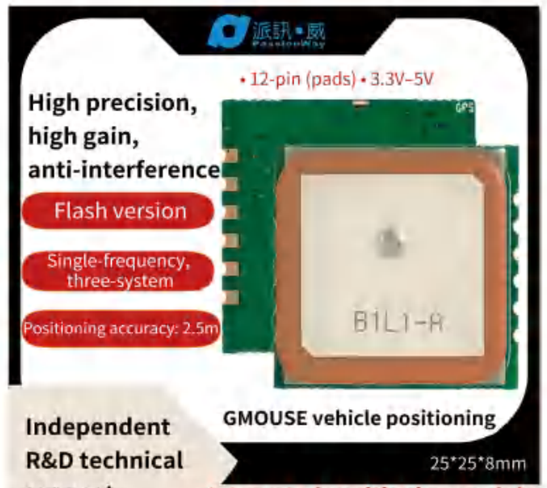
●Single-frequency multi-system
Support BDS, GPS, GLONASS, Galileo, and QZSS systems
●High precision
Support on-chip PVT positioning calculation with positioning accuracy up to 2 m.
●Strong anti-interference capability
Built-in narrowband anti-interference technology, capable of suppressing interference up to -75dBm.
●Packaging type
Integrated antenna design: 27mm (width) × 27mm (length) × ≤8.8mm (height)

Satellite channels	68 channels	Dimensions	Length: 27mm Width: 27mm Height: ≤8.8mm
Constellation frequency bands	BDS:B1I、B1C*	Connector	FPC + 6-pin connector
	GPS: L1C/AN L1C*	Cable length	6-pin connector
	GLONASS: G1	Working temperature	-40°C+85°C
	Galileo: E1B/C	Storage temperature	-40°C+85°C
	QZSS: L1C/A	Electrical specifications	
		Power supply voltage	+3.3V~+5V
Positioning Accuracy	PVT<2m	LNA power supply	
TTFF	Cold start: <28 s	Power consumption	Acquisition: 80 mW
	Hot start: <1 s		Tracking: 80 mW
	Warm start <10 s		
	Reacquisition: <2 s		
PPS	20 ns	Data format	NMEA0183
Positioning mode	GNSS		
Gain	5 d Bic Based on 25×25mm ground plane	Initialization time	<10s
Bandwidth	>20 MHz 20 MHz	Initialization rate	99.90%
Polarization	RHCP	Application limitations	Dynamic range ≤ 4g
Impedance	50 Ohms		Altitude ≤ 18,000
Data refresh rate	1–5 Hz, 10 Hz (customizable)		Speed ≤ 500 m/s
Storage	FLASH		Compliant with JEDEC standards, ROHS, and REACH requirements

GM226-25 single-frequency multi-system integrated PVT module

GM226-25 is a compact positioning terminal independently developed by Passion Way based on a single-frequency multi-system design, with dimensions of 27.2mm × 27.2mm × 6.6mm. It integrates a ceramic antenna and a single-frequency positioning module, supporting meter-level positioning accuracy at a 1Hz update rate.

With excellent positioning accuracy and superior multipath suppression capability, this module can maintain meter-level positioning performance in various complex urban environments. It is widely applicable for drones, lawn mowers, surveying, and mapping.



Technical advantages

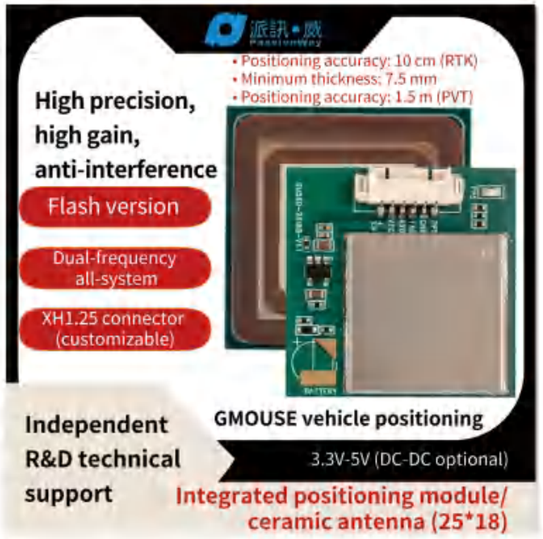
●Single-frequency, all-system
Support BDS, GPS, GLONASS, and Galileo systems.
●High precision
Support on-chip PVT positioning calculation, with positioning accuracy up to 2.5 m + 1 ppm
●Strong anti-interference capability
Built-in narrowband anti-interference technology, capable of suppressing interference up to -60 dBm
●Connection method
SMD surface mount

Satellite channels	68 channels	Dimensions	27.2mm*27.2mm*6.6mm
Constellation frequency bands	BDS:B1I、B1C*	Weight	
	GPS: L1C/AN L1C*	Packaging	SMD surface mount
	GLONASS: G1	Working temperature	-40°C+85°C
	Galileo: E1B/C	Storage temperature	-40°C+85°C
		Electrical specifications	
		Power supply voltage	+5V
Positioning Accuracy	PVT<2m+1ppm	LNA power supply	
TTFF	Cold start <29s	Power consumption	Acquisition: 185 mW
	Hot start: <1 s		Tracking: 130 mW
	Warm start <1s		
	Reacquisition <1 s		
PPS	20 ns	Data format	NMEA0183
Positioning mode	GNSS		
Gain	5 d Bic Based on 25×25mm ground plane	Initialization time	<10s
Bandwidth	>20 MHz 20 MHz	Initialization rate	99.90%
Polarization	RHCP	Application limitations	Dynamic range ≤ 4g
Impedance	50 Ohms		Altitude ≤ 18,000
Data refresh rate	1Hz		Speed ≤ 500 m/s
Storage	FLASH		Compliant with JEDEC standards, ROHS, and REACH requirements

GM58Q-25 dual-frequency multi-system RTK integrated module

GM58Q-25 is a compact positioning terminal developed by Passion Way based on dual-frequency multi-system RTK technology, with dimensions of 27mm in length, 27mm in width, and a height of ⩽12mm (minimum height available is 7.5mm). Internally integrated with a ceramic antenna and dual-frequency positioning module, it achieves centimeter-level positioning accuracy at an update rate of 1-5Hz through the input of D-GNSS differential data.

With excellent positioning accuracy and superior multipath suppression capability, this module can maintain meter-level positioning performance in a variety of complex urban environments. It is widely applicable for drones, shared bicycles, intelligent driving, and other fields.



Technical advantages

●Dual-frequency multi-system
Support BDS B1I/B1C*/B2a/B2b*, GPS L1/L5, GLONASS L1, Galileo E1/E5a, QZSS L1/L5 and other frequency bands.

●High precision
Support on-chip RTK positioning solution, with positioning accuracy up to 1 cm.

●Strong anti-interference capability
Built-in narrowband anti-interference technology, capable of suppressing interference up to -60 dBm

●Integrated antenna
Integrated ceramic antenna, front-end SAW filter for enhanced anti-interference.

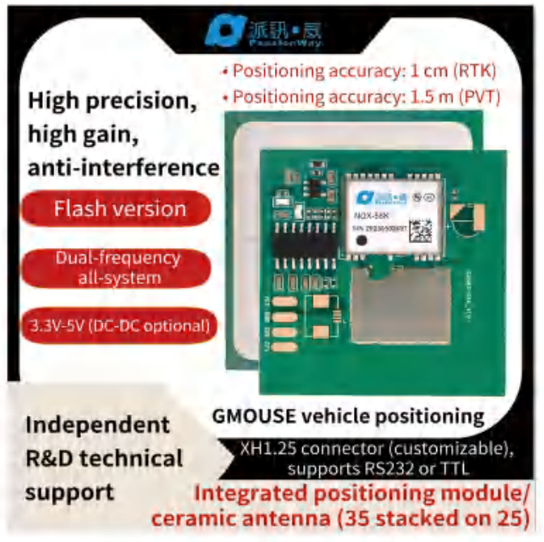
●Connection method
6-pin connector

Satellite channels	94 channels	Dimensions	27mm*27mm*12mm
Constellation frequency bands	BDS B1I B1C B2a B2b*	Connector	Horizontal 6-pin connector
	GPS L1/L5	Weight	8g
	GLONASS LI	Working temperature	-40°C+85°C
	Galileo E1/E5a	Storage temperature	-40°C+85°C
	QZSS L1/L5	Electrical specifications	
	NAVIC	Power supply voltage	+3.3V ~+5V
Positioning Accuracy	RTK positioning <1 cm + 1 ppm	LNA power supply	
	PVT:1.5m	Power consumption	Acquisition: 145 mW
TTFF	Cold start: <28 s		
	Hot start: <1 s		Tracking: 145 mW
	Warm start <10 s		
	Reacquisition <1 s		
PPS	20 ns	Data format	NMEA0183
Positioning mode	GNSS		Support raw data output
Gain	5 d Bic Based on 25×25mm ground plane	Initialization time	<10s
Bandwidth	>2 0MHz2 0 MHz	Initialization rate	99.90%
Polarization	RHCP	Application limitations	Dynamic range ⩽ 4g
Impedance	50 Ohms		Altitude ⩽ 18,000
Data refresh rate	1~5 Hz, 10 Hz (customizable)		Speed ⩽ 515 m/s
Storage	FLASH		Compliant with JEDEC standards, ROHS, and REACH requirements

GM58K-35 dual-frequency multi-system RTK integrated module

GM58K-35 is a compact positioning terminal developed by Passion Way based on dual-frequency multi-system RTK technology, with dimensions of 39mm in length, 39mm in width, and a height of up to 12mm. It integrates a ceramic antenna and a dual-frequency positioning module, and achieves centimeter-level positioning accuracy at an update rate of 1-5Hz through the input of D-GNSS differential data.

With excellent positioning accuracy and superior multipath suppression capabilities, this module can maintain meter-level positioning performance in a variety of complex urban environments, making it widely applicable to drones, lawn mowers, precision agriculture, and other fields.



Technical advantages

●Dual-frequency multi-system
Support BDS B1I/B1C*/B2a/B2b*, GPS L1/L5, GLONASS L1, Galileo E1/E5a, and QZSS L1/L5 frequency bands

●High precision
Support on-chip RTK positioning solution, with positioning accuracy up to 1 cm.

●Strong anti-interference capability
Built-in narrowband anti-interference technology, capable of suppressing interference up to -60 dBm

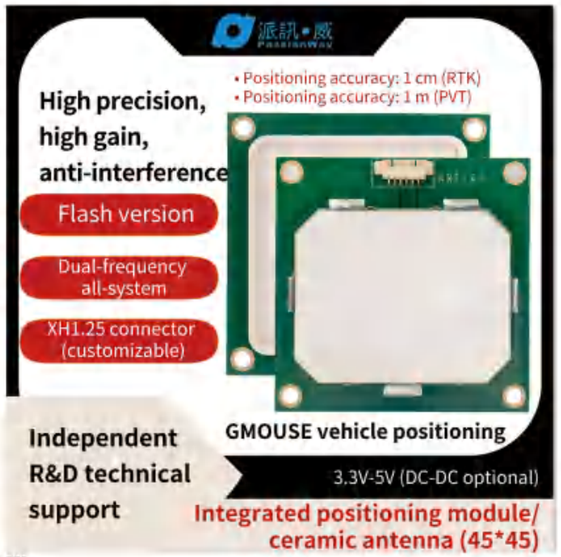
●Connection method
SMT pads

Satellite channels	94 channels	Dimensions	39mm×39mm×12mm
Constellation frequency bands	BDS B1I B1C B2a B2b*	Weight	15g
	GPS L1/L5	Connection method	Pads
	GLONASS L1	Working temperature	-40°C+85°C
	Galileo E1/E5a	Storage temperature	-40°C+85°C
	QZSS L1/L5	Electrical specifications	
	NAVIC	Power supply voltage	+3.3V~+5V
Positioning Accuracy	RTK positioning <1 cm + 1 ppm	LNA power supply	
	PVT:1.5m	Power consumption	Acquisition: 145 mW
TTFF	Cold start: <28 s		
	Hot start: <1 s		Tracking: 145 mW
	Warm start <10 s		
	Reacquisition <1 s		
PPS	20 ns	Data format	NMEA0183
Positioning mode	GNSS		
Gain	5 d Bic Based on 35×35mm ground plane	Initialization time	<10s
Bandwidth	>2 0MHz2 0 MHz	Initialization rate	99.90%
Polarization	RHCP	Application limitations	Dynamic range ⩽ 4g
Impedance	50 Ohms		Altitude ⩽ 18,000
Data refresh rate	1~5 Hz, 10 Hz (customizable)		Speed ⩽ 515 m/s
Storage	FLASH		Compliant with JEDEC standards, ROHS, and REACH requirements

GM58K-45 dual-frequency multi-system RTK integrated module

GM58K-45 is a compact positioning terminal developed by Passion Way based on dual-frequency multi-system RTK technology, with dimensions of 49.5mm in length, 49.5mm in width, and a height of up to 16mm. It integrates a ceramic antenna and a dual-frequency positioning module, and achieves centimeter-level positioning accuracy at an update rate of 1-5Hz through the input of D-GNSS differential data.

With excellent positioning accuracy and superior multipath suppression capability, this module can maintain meter-level positioning performance in a variety of complex urban environments. It is widely applicable to vehicle positioning, high-precision GIS, precision agriculture, and other fields.



Technical advantages

●Dual-frequency multi-system
Support BDS B1I/B1C*/B2a/B2b*, GPS L1/L5, GLONASS L1, Galileo E1/E5a, QZSS L1/L5 and other frequency bands.

●High precision
Support on-chip RTK positioning solution, with positioning accuracy up to 1 cm.

●Strong anti-interference capability
Built-in narrowband anti-interference technology, capable of suppressing interference up to -60 dBm

●Integrated antenna
Integrated ceramic antenna with front-end SAW

●Connection method
1.25mm horizontal 6-pin connector

Satellite channels	94 channels	Dimensions	Length: 49.5mm, width: 49.5mm, height: ≤16mm
Constellation frequency bands	BDS B1I B1C B2a B2b*	Weight	20g
	GPS L1/L5	Connection method	6-pin connector
	GLONASS L1	Working temperature	-40°C+85°C
	Galileo E1/E5a	Storage temperature	-40°C+85°C
	QZSS L1/L5	Electrical specifications	
	NAVIC	Power supply voltage	+3.3V~+5V
Positioning Accuracy	RTK positioning <1 cm + 1 ppm	LNA power supply	
	PVT<1m	Power consumption	Acquisition: 145 mW
TTFF	Cold start: <28 s		Tracking: 145 mW
	Hot start: <1 s		
	Warm start <10 s		
	Reacquisition <1 s		
PPS	20 ns	Data format	NMEA-0183
Positioning mode	GNSS		
Gain	5 d Bic Based on 45×45mm ground plane	Initialization time	<10s
Bandwidth	>20 MHz 20 MHz	Initialization rate	99.90%
Polarization	RHCP	Application limitations	Dynamic range ⩽ 4g
Impedance	50 Ohms		Altitude ⩽ 18,000
Data refresh rate	1~5 Hz, 10 Hz (customizable)		Speed ⩽ 515 m/s
Storage	FLASH		Compliant with JEDEC standards, ROHS, and REACH requirements

GM58K-S dual-frequency multi-system RTK integrated module

GM58K-S is a compact positioning terminal developed by Passion Way based on dual-frequency multi-system RTK technology, with dimensions of 30.5mm × 23.8mm × 42.5mm. It integrates a quadrifilar helix antenna and a dual-frequency RTK positioning module, achieving centimeter-level positioning accuracy at an update rate of 1–10Hz through the input of D-GNSS differential data.

With excellent positioning accuracy and superior multipath suppression capabilities, this module can maintain meter-level positioning performance in a variety of complex urban environments, making it widely applicable to drones, lawn mowers, precision agriculture, and other fields.

Technical advantages

●Dual-frequency multi-system
Support BDS B1I/B1C*/B2a/B2b*, GPS L1/L5, GLONASS L1, Galileo E1/E5a, QZSS L1/L5 and other frequency bands

●High precision
Support on-chip RTK positioning calculation, with positioning accuracy up to 1cm + 1ppm

●Strong anti-interference capability
Built-in narrowband anti-interference technology, capable of suppressing interference up to -60 dBm

●Connection method
1.25mm horizontal 6-pin connector

Satellite channels	94 channels	Dimensions	30.5mm*23.8*mm*42.5mm
Constellation frequency bands	BDS B1I B1C B2a B2b*	Weight	
	GPS L1/L5	Connection method	1.25mm horizontal 6-pin connector
	GLONASS L1	Working temperature	-40°C+85°C
	Galileo E1/E5a	Storage temperature	-40°C+85°C
	QZSS L1/L5	Electrical specifications	
	NAVIC	Power supply voltage	+3.3V~+5V
Positioning Accuracy	RTK positioning <1 cm + 1 ppm	LNA power supply	
	PVT:1.5m	Power consumption	Acquisition: 145 mW
TTFF	Cold start: <28 s		Tracking: 145 mW
	Hot start: <1 s		
	Warm start <10 s		
	Reacquisition <1 s		
PPS	20 ns	Data format	NMEA0183
Positioning mode	GNSS		
Gain	2dBic	Initialization time	<10s
Bandwidth	>20MHz	Initialization rate	99.90%
Polarization	Right-hand circular polarization	Application limitations	Dynamic range ⩽ 4g
Impedance	50 Ohms		Altitude ⩽ 18,000
Data refresh rate	1~5 Hz, 10 Hz (customizable)		Speed ⩽ 515 m/s
Storage	FLASH		Compliant with JEDEC standards, ROHS, and REACH requirements

GM681 dual-frequency multi-system RTK integrated module

GM681 is based on Unicore' s automotive-grade multi-system dual-frequency high-precision UM681, a GNSS+IMU combined navigation and positioning module. The module is designed on the fully self-owned intellectual property multi-system, dual-frequency, high-performance SOC chip—UC6580A. It features a built-in 6-axis inertial navigation device, enabling RTK centimeter-level positioning, and can also provide continuous positioning in environments without satellite signals, such as tunnels and underground parking garages.

The GNSS chip used in the UM681A module is designed in accordance with AEC-Q100 standards, and the manufacturing process complies with IATF16949 requirements.

Technical advantages

●Dual-frequency multi-system

Support BDS B1I/B1C*/B2a/B2b*, GPS L1/L5, GLONASS L1, Galileo E1/E5a, QZSS L1/L5 and other frequency bands.

●High precision

Support on-chip RTK positioning solution, with positioning accuracy up to 1 cm.

●Strong anti-interference capability

Built-in narrowband anti-interference technology, capable of suppressing interference up to -60 dBm

●Connection method

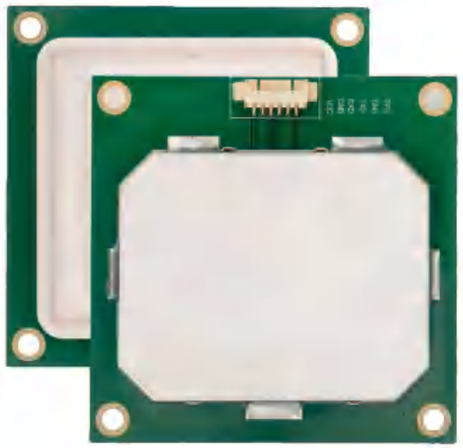
4-pin solder pad

Satellite channels	94 channels	Dimensions	51.6mm*51.6mm*15.5mm
Constellation frequency bands	BDS B1I B1C* B2a B2b*	Weight	20g
	GPS L1/L5	Connection method	4-pin pad
	GLONASS G1*	Working temperature	-40°C+85°C
	Galileo E1/E5a	Storage temperature	-40°C+85°C
	QZSS L1/L5	Electrical specifications	
	NAVIC L5*	Power supply voltage	+3.6V~+5V
Positioning Accuracy	RTK positioning <1 cm + 1 ppm	LNA power supply	
	PVT<1.5m	Power consumption	Acquisition: 145 mW
TTFF	Cold start: <28 s		Tracking: 145 mW
	Hot start <2s		
	Warm start <2s		
	Reacquisition: <2 s		
PPS	20 ns	Data format	NMEA0183
Positioning mode	GNSS		
Gain	5dBic Basedon 35×35mm ground plane	Initialization time	<10s
Bandwidth	>20 MHz 20 MHz	Initialization rate	99.90%
Polarization	RHCP	Application limitations	Dynamic range ⩽ 4g
Impedance	50 Ohms		Altitude ⩽ 18,000
Data refresh rate	1~5 Hz, 10 Hz (customizable)		Speed ⩽ 515 m/s
Storage	FLASH		Compliant with JEDEC standards, ROHS, and REACH requirements

GM960 multi-frequency multi-system RTK integrated module

GM960 is a high-precision module developed based on the Unicore UM960, with an integrated ceramic antenna. It can simultaneously track BDS B1/B2I/B3I, GPS L1/L2/L5, GLONASS G1/G2, Galileo E1/E5b/E5a, QZSS L1/L2/L5 and other signal frequencies. Targeted for use in high-precision navigation and positioning fields such as landslide monitoring, deformation monitoring, and other high-precision applications.

Built-in dual-core CPU, integrated high-speed floating-point processor, and dedicated RTK coprocessor, supporting 1408 super channels for more powerful satellite navigation signal processing capabilities. Support RTK positioning result output at 20Hz.



Technical advantages

●Multi-frequency, multi-system

Support BDS B1/B2I/B3I, GPS L1/L2/L5, GLONASS G1/G2, Galileo E1/E5b/E5a, QZSS L1/L2/L5 and other signal frequencies.

●High precision

Support on-chip RTK positioning calculation, with positioning accuracy up to 0.8cm + 1ppm

●Strong anti-interference capability

All-system multi-frequency RTK engine and AllStar RTK technology
Independent tracking of each satellite frequency and 60dB narrowband anti-interference technology.

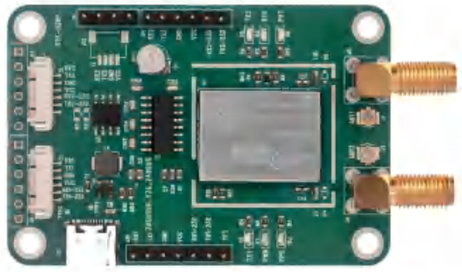
●Connection method

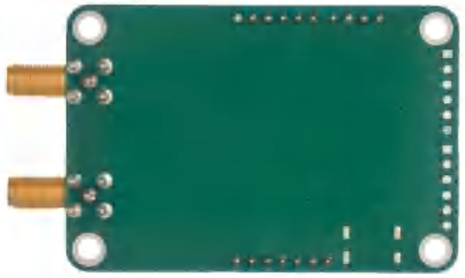
4-pin pad

Satellite channels	1408 super channels	Dimensions	Length: 49.5mm, width: 49.5mm, height: ⩽16mm
Constellation frequency bands	BDS B1/B21/B31	Weight	25g
	GPS L1/L2/L5	Packaging	Integrated
	GLONASS G1 G2	Working temperature	-40°C+85°C
	Galileo E1/E5b/E5a	Storage temperature	-40°C+85°C
	QZSS L1/L2/L5	Electrical specifications	
	RTK positioning <0.8 cm + 1 ppm	Power supply voltage	+3.6V(DC)~+5V
Positioning Accuracy	PVT<1.5m	LNA power supply	
	DGPS<0.4m	Power consumption	Acquisition: 100 mW
TTFF	Cold start: <28 s		Tracking: 100 mW
	Hot start: <1 s		
	Warm start < 10s		
	Reacquisition <1 s		
PPS	20 ns	Data format	NMEA-0183
Positioning mode	GNSS		
Gain	5dBic Basedon 45×45mm ground plane	Initialization time	<10s
Bandwidth	>20MHz 20 MHz	Initialization rate	99.90%
Polarization	RHCP	Application limitations	Dynamic range ⩽ 4g
Impedance	50 Ohms		Altitude ⩽ 18,000
Data refresh rate	20HZ		Speed ⩽ 515 m/s
Storage	FLASH		Compliant with JEDEC standards, ROHS, and REACH requirements

DM982 DM-982 RTK module

DM-982 is a high-precision RTK evaluation board independently developed by Passion Way based on the Unicore UM982, featuring convenient connection, quick deployment, and comprehensive functionality. Suitable for surveying and mapping, drones, agriculture, inspection, power, and a variety of other industries; it is convenient, efficient, and effective.





Satellite channels	1408 super channels				Cold start	<30s
Constellation frequency bands	BDS B1I/B2I/B3I/B1C/B2a/B2b				Initialization	<5s (typical value)
	GPS L1C/A/L1C/L2P/L2C/L5				Initialization reliability	>99.9%
	GLONASS G1/G2/G3				Data update rate	Dual antenna 20Hz
	Galileo E1/E5a/E5b/E6					20Hz raw data
	QZSS L1C/A/L1C/L2C/L5				Differential data	RTCM V3.X
	NAVIC L5				Data format	NMEA0183,Unicore
	SBAS L1C/A				Physical characteristics	
Single-point positioning (RMS)	Horizontal: 1.5 m				Packaging	Mounting holes
	Vertical: 2.5 m				Dimensions	
DGPS(RMS)	Horizontal: 0.4 m				Weight	5g
	Short-baseline: 0.8 m				Environmental specifications	
RTK	Horizontal: 0.8 cm + 1 ppm				Working temperature	
	Vertical: 1.5 cm + 1 ppm				Storage temperature	
Observation accuracy	BDS	GPS	GLOASS	Galileo	Humidity	
B1I/L1C/A/G1/E1 pseudorange	10cm	10cm	10cm	10cm		
B1I/L1C/A/G1/E1 carrier phase	1mm	1mm	1mm	1mm		
B2I/L5/E5a/E5b pseudorange	10cm	10cm	10cm	10cm	Communication interface	
B2I/L5/E5a/E5b carrier phase	1mm	1mm	1mm	1mm	RS232*3	
B3I/L2P(Y)/L2C/G2 pseudorange	10cm	10cm	10cm	10cm	TTL*3	
B3I/L2P(Y)/L2C/G2 carrier phase	1mm	1mm	1mm	1mm	TESP_C*1	
Orientation accuracy	0.1' / 1m baseline					
Time accuracy	20ns					
Speed accuracy	0.03m/s					
Data refresh rate	20HZ					
Storage	FLASH					

GM58K-BT dual-frequency multi-system RTK integrated module

GMS58K-BT is a compact positioning terminal developed by Passion Way based on dual-frequency multi-system RTK technology, with a round form factor: 47.5mm × 35.9mm. It features an integrated quadrifilar helix antenna and dual-frequency RTK positioning module, achieving centimeter-level accuracy at an update rate of 1–10Hz with D-GNSS differential data input.

With excellent positioning accuracy and superior multipath suppression capabilities, this module can maintain meter-level positioning performance in a variety of complex urban environments, making it widely applicable to drones, lawn mowers, precision agriculture, and other fields.

Technical advantages

●Dual-frequency multi-system
Support BDS B1I/B1C*/B2a/B2b*, GPS L1/L5, GLONASS L1, Galileo E1/E5a, QZSS L1/L5 and other frequency bands

●High precision
Support on-chip RTK positioning calculation, with positioning accuracy up to 1cm + 1ppm

●Strong anti-interference capability
Built-in narrowband anti-interference technology, capable of suppressing interference up to -60 dBm

●Connection method
1.25mm pitch 8-pin locking connector

Satellite channels	94 channels	Dimensions	ø47*35.9mm
Constellation frequency bands	BDS B1I B1C B2a B2b*	Weight	6g
	GPS L1/L5	Connection method	1.25mm pitch 8-pin locking connector
	GLONASS L1	Working temperature	-40°C+85°C
	Galileo E1/E5a	Storage temperature	-40°C+105°C
	QZSS L1/L5	Electrical specifications	
	NAVIC	Power supply voltage	+3.3V~+5V (optional DCDC)
Positioning Accuracy	RTK positioning <1 cm + 1 ppm	LNA power supply	
	PVT<1m	Compass	Built-in electronic compass QMC5883
TTFF	Cold start: <28 s		
	Hot start <2s	Initialization rate	99.90%
	Warm start <2s	Initialization time	<10s
	Reacquisition: <2 s		
1PPS time accuracy	RMS30ns	Data format	NMEA0183
	99%60ns		
Positioning mode	GNSS	Application limitations	Dynamic range ⩽ 4g
Baud rate	4800bps-921600bps, default 115200bps		Altitude ⩽ 18,000
Output level	TTL level		Speed ⩽ 500 m/s
Data refresh rate	1~5 Hz, 10 Hz (customizable)		Compliant with JEDEC standards, ROHS, and REACH requirements
Storage	FLASH		

Product quality advantages

Passion Way always adheres to the concept of "high standards and high quality", implementing quality management throughout the product lifecycle based on systematic and process-driven approaches to provide customers with high-quality, highly reliable products.

The chip products are manufactured by world-class integrated circuit foundries, utilizing top-tier reliability testing standards in the industry. Every chip is crafted with great care to ensure the highest quality.

The module products undergo rigorous internal validation and reliability testing, hundreds of thousands of hours of road testing, and 100% factory testing. Functional and performance tests are conducted by nationally recognized third-party organizations. The products comply with JEDEC standards and meet ROHS and REACH requirements, ensuring high quality for module products. Equipped with Beidou Xintong series chips, the modules were among the first to obtain Beidou Basic Product Certification.

Passion Way is committed to pursuing exceptional product quality, maintaining an industry-leading position with outstanding products, and is a navigation chip and module supplier that customers can trust for the long term.

Product application categories


Locator


Driverless


Automated lawn mower robot


Drone