EWM108-GN05 Series Product Specifications

DUAL-FREQUENCY HIGH-PERFORMANCE GNSS POSITIONING MODULE



Chengdu Ebyte Electronic Technology Co.,Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

TABLE OF CONTENTS

CHAPTER 1 PRODUCT OVERVIEW 5

1.1 PRODUCT INTRODUCTION 5
1.2 FEATURES 5
1.3 APPLICATION SCENARIO 5

CHAPTER 2 SPECIFICATIONS 6

2.1 TWENTY ONE WORKING PARAMETERS 6
2.2 HARDWARE PARAMETERS 6
2.3 GPS PERFORMANCE PARAMETERS 7

CHAPTER 3 MECHANICAL DIMENSIONS AND PIN DEFINITION 8

3.1 EWM108-GN05 PIN DEFINITION 8
3.2 EWM108-GN05S PIN DEFINITION 9

CHAPTER 4 RECOMMENDED CONNECTION DIAGRAM 11

4.1 EWM108-GN05 11
4.2 EWM108-GN05S 11

CHAPTER 5 HARDWARE DESIGN 12

CHAPTER 6 EWM108-PRODUCT TESTING 13

6.1 SERIAL PORT ASSISTANT 13
6.2 RUN SATRACK_CLIENT 14

CHAPTER 7 INSTRUCTION FORMAT 15

7.1 INSTRUCTION FORMAT 15
7.2SUPPORT NMEA0183 PROTOCOL 15
7.2.1 Statement identifiers 15
7.2.2 GGA 15
7.2.3 GSA 16
7.2.4 GSV 17
7.2.5 VTG 18

CHAPTER 8 FREQUENTLY ASKED QUESTIONS 19

8.1 THE TRANSMISSION DISTANCE IS NOT IDEAL 19
8.2 MODULE IS EASILY DAMAGED 19

Copyright ©2012–2025，Chengdu Ebyte Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

CHAPTER 9 WELDING WORK INSTRUCTIONS 19

9.1 REFLOW TEMPERATURE 19
9.2 REFLOW OVEN CURVE 20

CHAPTER 10 RELATED MODELS 21

REVISION HISTORY 22

ABOUT US 22

Copyright ©2012–2025，Chengdu Ebyte Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Disclaimer and Copyright Notice

The information in this document, including URL references, is subject to change without notice. The document is provided "as is" without warranty of any kind, including any warranty of merchantability, fitness for a particular purpose, or non-infringement, and any warranty otherwise provided by any proposal, specification, or sample. No liability is assumed for this document, including liability for infringement of any patent arising from the use of the information in this document. No license, express or implied, by estoppel or otherwise, to any intellectual property right is granted by this document.

The test data obtained in this article are all obtained by Ebyte Laboratory testing, and the actual results may be slightly different.All trade names, trademarks and registered trademarks mentioned herein are the property of their respective owners and are hereby acknowledged.

The final right of interpretation belongs to Chengdu Ebyte Electronic Technology Co., Ltd.

Notice :

Due to product version upgrades or other reasons, the contents of this manual may be changed. Ebyte Electronic Technology Co., Ltd. reserves the right to modify the contents of this manual without any notice or reminder. This manual is only used as a guide. Chengdu Ebyte Electronic Technology Co., Ltd. tries its best to provide accurate information in this manual, but Chengdu Ebyte Electronic Technology Co., Ltd. does not ensure that the contents of the manual are completely error-free, and all statements, information and suggestions in this manual do not constitute any express or implied warranty.

Copyright ©2012–2025，Chengdu Ebyte Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

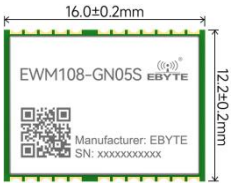
Chapter 1 Product Overview

1.1 Product Introduction

The EWM108-GN05 series is a high-performance dual-frequency GNSS positioning module equipped with the HD8040D chip solution of Huada Beidou. The module supports the new generation of Beidou-3 signal system and all global civil navigation satellite systems including BDS, GPS, GLONASS, Galileo, SBAS, QZSS, etc. It provides high-precision, high-sensitivity, and low-power solutions for GNSS navigation applications, and can customize SPI, USB, CAN, and I2C interface outputs.



EWM108-GN05



EWM108-GN05S

1.2 Features

- Supports all global civil navigation satellite systems including BDS, GPS, GLONASS, Galileo, SBAS, QZSS, etc;
- Support BeiDou-3 signal system (B1C, B2a);
- Supports simultaneous reception of L1 and L5 dual-band multi-mode signals;
- D-GNSS differential positioning is supported;
- The maximum positioning information update rate can reach 10Hz;
- Support PPS output;
- Output format: support NMEA0183V4.1 and previous versions;
- Satellite positioning accuracy can reach sub-meter level, and excellent anti-multipath interference function improves positioning performance in urban and canyon scenes;
- Built-in intelligent interference detection and filtering technology to achieve sub-meter high-precision positioning;
- High sensitivity: cold start -148dBm, hot start -155dBm, recapture -158dBm, tracking -162dBm;
- Compatible with software and hardware from other manufacturers, greatly reducing the user's development cycle.

1.3 Application Scenario

- Vehicle positioning and navigation equipment;
- Wearable devices, such as GPS locators;
- UAV positioning, industrial computers, etc.
- Industrial equipment that requires GNSS positioning or navigation;
- Portable devices such as mobile phones, tablets, etc.
- Asset tracking;

Copyright ©2012–2025，Chengdu Ebyte Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Chapter 2 Specifications

2.1 Twenty one Working Parameters

Main parameters	performance			Remark
	Minimum	Typical Value	Maximum	
Operating voltage (V)	1.8	3.3	3.6	Over 3.6V may burn the module
Communication level (V)		3.3		use 5V TTL has the risk of burning out
Operating temperature (℃)	- 40	-	+85	Industrial-grade design
humidity	5%	-	-95%RH	No condensation

2.2 Hardware Parameters

Main parameters	describe	Remark
Baud rate (bps)	1200~460800	Default 115200bps
Data bits	8bit	-
Stop bits	1	-
EWM108-GN05 Communication Interface	UART	-
EWM108-GN05S Communication Interface		
EWM108-GN05 packaging	SMD	-
EWM108-GN05S packaging		-
EWM108-GN05 Dimensions	9.7*10.5*3.1mm	±0.2mm
EWM108-GN05S Dimensions	12.2*16.0*3.1 mm	
EWM108-GN05 Antenna Interface	Stamp Holes	-
EWM108-GN05S Antenna Interface		-
Output Format	NMEA0183 V4.0/4.1 and earlier versions RTCM 2.3/2.4/3.0/3.2 Cynosure GNSS Receiver Protocol	-
Positioning update rate	1Hz	The maximum positioning update frequency can reach 10Hz

Copyright ©2012–2025，Chengdu Ebyte Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Supported positioning systems		BDS/GPS/GLONASS/ Galileo/QZSS/SBAS	GPS/QZSS: L1C/A, L5C BDS: B1I, B2a GLONASS: L1 Galileo: E1, E5a SBAS: L1
Product Weight	EWM108-GN05	0.5	±0.1g
	EWM108-GN05S	0.9g	

2.3 GPS performance parameters

category	Indicator	Typical Value	unit
Positioning time (test condition 1)	Cold Start	⩽28	s
	Hot Start	⩽1	s
Sensitivity (Test Condition 2)	Cold Start	-148	dBm
	Hot Start	-155	dBm
	Recapture	-158	dBm
	track	-162	dBm
Accuracy (Test Condition 3)	Horizontal positioning accuracy	＜1	m
	Speed positioning accuracy	<0.1	m/s
	Timing accuracy	25	ns
Power consumption (test condition 4)	EWM108-GN05 capture current	47.3	mA
	EWM108-GN05S capture current		
	EWM108-GN05 tracking current	47.8	mA
	EWM108-GN05S Tracking Current	47.2	
	EWM108-GN05 sleep current	14	uA
	EWM108-GN05S Sleep Current		

Note: The above results are for GPS/ Beidou dual-mode working mode .

[Test condition 1] : The number of received satellites is greater than 6 , the signal strength of all satellites is -130dBm , the average value is taken after 10 tests , and the positioning error is less than 10 meters.

[Test Condition 2] : External LNA noise coefficient 0.8 , number of received satellites greater than 6 , received signal strength value under lock or no loss of lock conditions within 5 minutes.

[Test condition 3] : Open and unobstructed environment, 24 hours of continuous power-on test, 50% CEP .

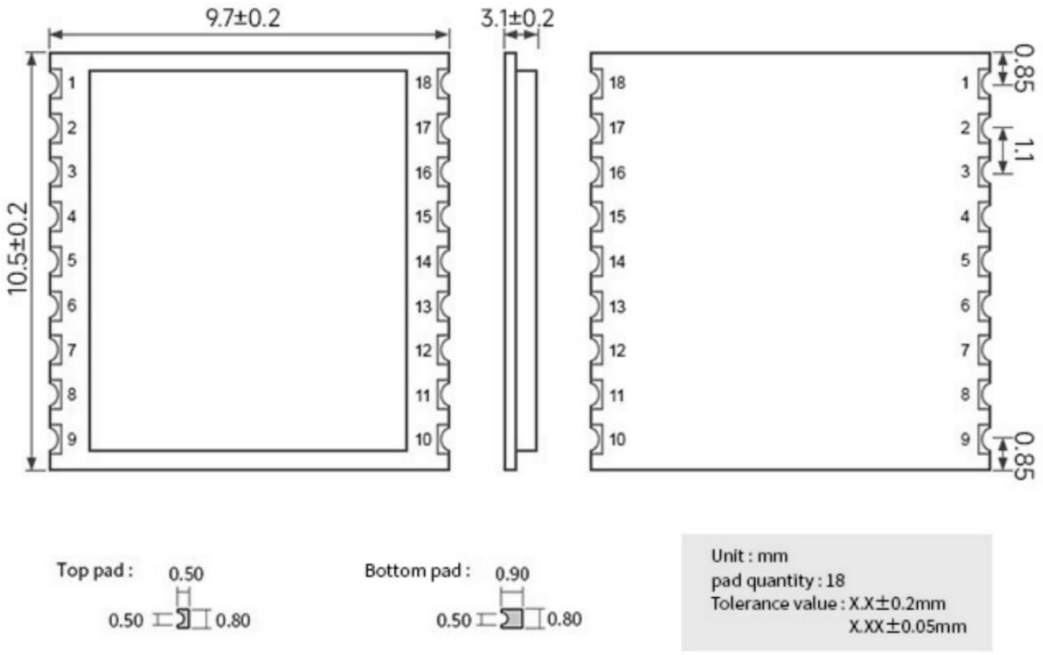
[Test condition 4] : The number of received satellites is greater than 6 , and the signal strength of all satellites is -130dBm .

Copyright ©2012–2025，Chengdu Ebyte Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Chapter 3 Mechanical Dimensions and Pin Definition

3.1 EWM108-GN05 Pin Definition

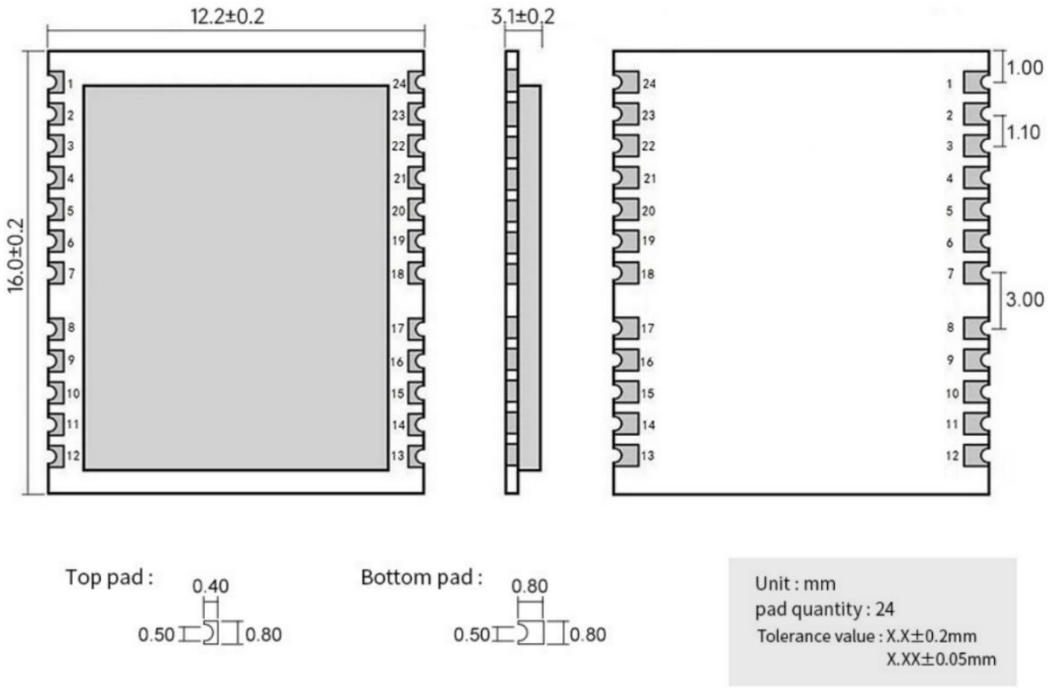


Pin number	Pin Name	Pin Direction	Pin Purpose
1	GND	-	Module Ground
2	TXD	Output	Serial port output, 3.3V level
3	RxD	Input	Serial port input, 3.3V level
4	1PPS	Output	1 Pulse Per Second
5	NC	-	-
6	V_BCKP	Input	Module backup power, backup power range 1.8~3.6V
7	NC	-	-
8	VDD	Input	Module power supply, power supply range: 1.8~3.6V
9	PRRSTX	Input	Reset pin, external reset input, internal pull-up, low level is valid, must be left floating if not used
10	GND	-	Module Ground
11	RF_IN	Input	Antenna signal input, impedance 50Ω
12	GND	-	Module Ground
13	NC	-	-
14	ANT_BIAS	Output	Antenna power supply pin, the current cannot exceed 35mA
15	NC	-	-
16	NC	-	-
17	NC	-	-
18	PRTRG	Input	Working mode selection, or wake-up signal input

Copyright ©2012–2025，Chengdu Ebyte Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

3.2 EWM108-GN05S pin definition



Pin number	Pin Name	Pin Direction	Pin Purpose
1	NC	-	-
2	PRTRG	Input	Working mode selection, or wake-up signal input.
3	1PPS	Output	1 Pulse Per Second
4	NC	-	-
5	NC	-	-
6	NC	-	-
7	NC	-	-
8	PRRSTX	Input	Reset pin, external reset input, internal pull-up, low level is valid, must be left floating if not used
9	ANT_BIAS	Output	Antenna power supply pin, the current cannot exceed 35mA
10	GND	-	Module Ground
11	RF_IN	Input	Antenna signal input, impedance 50Ω
12	GND	-	Module Ground
13	GND	-	Module Ground
14	NC	-	-
15	NC	-	-
16	NC	-	-
17	NC	-	-
18	NC	-	-
19	NC	-	-
20	TXD	Output	Serial port output, 3.3V level

Copyright ©2012–2025，Chengdu Ebyte Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

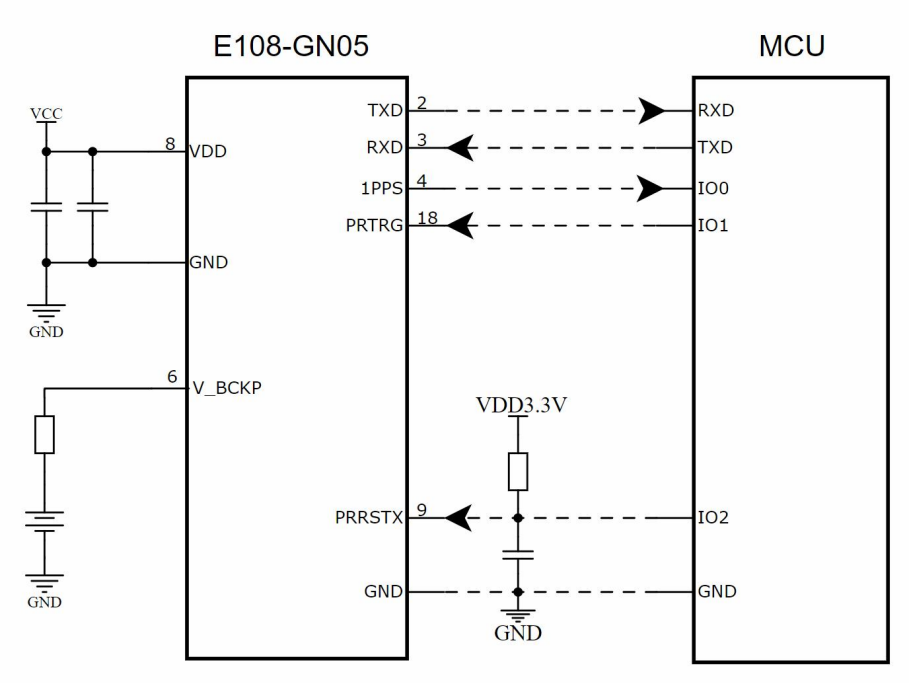
21	RxD	Input	Serial port input, 3.3V level
22	V_BCKP	Input/Output	Module backup power, backup power range 1.8~3.6V
23	VDD	Input	Power supply pin, power supply range: 1.8~3.6V
24	GND	-	Module Ground

Copyright ©2012–2025，Chengdu Ebyte Electronic Technology Co., Ltd.

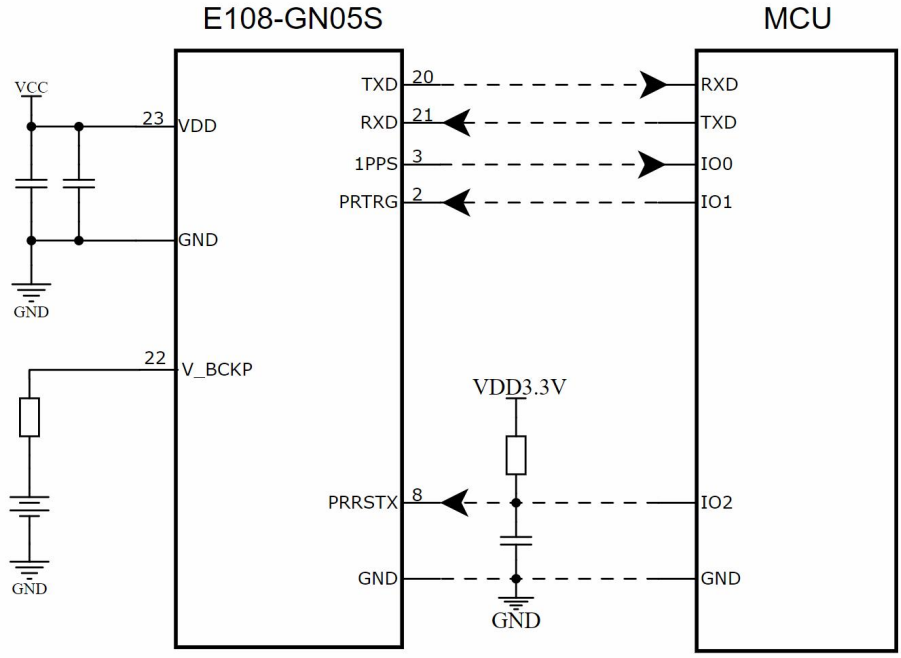
Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Chapter 4 Recommended Connection Diagram

4.1 EWM108-GN05



4.2 EWM108-GN05S



Copyright ©2012–2025，Chengdu Ebyte Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Chapter 5 Hardware Design

- It is recommended to use a DC regulated power supply to power the module. The power ripple should not exceed 50mV, and the module needs to be reliably grounded.
- Please pay attention to the correct connection of the positive and negative poles of the power supply. Reverse connection may cause permanent damage to the module.
- Please check the power supply to ensure that it is within the recommended power supply voltage. If it exceeds the maximum value, the module will be permanently damaged.
- The serial port TXD and RXD are LV TTL level. If connected to a PC, RS232 level conversion is required. Users can use this serial port to receive positioning information data and software upgrades ;
- This module is a temperature-sensitive device. Drastic temperature changes will cause its performance to degrade. Keep it away from high-temperature airflow and high-power heating devices when using it .
- When designing the power supply circuit for the module, it is often recommended to retain more than 30% margin, which is conducive to long-term stable operation of the whole machine;
- The module should be kept as far away as possible from parts with large electromagnetic interference , such as power supplies, transformers, and high-frequency wiring. High-frequency digital wiring, high-frequency analog wiring, and power wiring must be kept away from under the module. If necessary, they must pass under the module .
- Assuming the module is soldered on the TopLayer, lay ground copper on the TopLayer of the module contact part (all copper is laid and well grounded), which must be close to the digital part of the module and routed on the BottomLayer;
- Assuming the module is soldered or placed on the TopLayer, it is also wrong to randomly route the wires on the BottomLayer or other layers, which will affect the module's spurious and receiving sensitivity to varying degrees;
- If there are devices with large electromagnetic interference around the module, it will also greatly affect the performance of the module. It is recommended to keep them away from the module according to the intensity of the interference. If possible, appropriate isolation and shielding can be performed.
- If there are traces with large electromagnetic interference around the module (high-frequency digital, high-frequency analog, power traces), it will also greatly affect the performance of the module. It is recommended to keep them away from the module according to the intensity of the interference. If possible, appropriate isolation and shielding can be performed.
- The antenna installation structure has a great impact on the module performance. Make sure the antenna is exposed and preferably vertically upward;
- When the module is installed inside the case, you can use a high-quality antenna extension cable to extend the antenna to the outside of the case;
- The antenna must not be installed inside a metal shell, as this will greatly reduce the transmission distance.

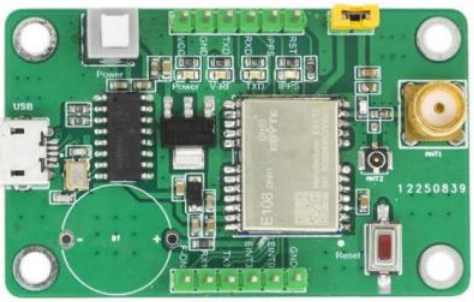
Copyright ©2012–2025，Chengdu Ebyte Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Chapter 6 EWM108-Product Testing

6.1 Serial Port Assistant

Based on EWT108 - GN05. If there is no test baseboard, you can refer to the baseboard schematic diagram in the data package (this test content is applicable to the entire EWM108-GN05 series) .



1. After connecting the GPS antenna, connect it to the computer via a USB cable. There is a USB port on the opposite side of the antenna on the board . Then press the power button to turn it on.

2. Note that when using an active antenna, the two RF_POWER pins need to be short-circuited with a jumper.

3. You can open the serial port assistant to view the data reported by the serial port, or use Satrack_client to view it.



The baud rate is set to 115200bps . After the serial port is opened, data will be reported continuously. The common output format is as follows:

GGA : time, position, number of satellites;

GSA : GPS receiver operation mode, satellites used for positioning, DOP value, positioning status;

GSV : visible GPS satellite information, elevation, azimuth, signal-to-noise ratio;

RMC : time, date, position, speed;

ZDA:UTC time

VTG : Ground speed information (for detailed meaning, please refer to NMEA0183 protocol;) ;

Copyright ©2012–2025，Chengdu Ebyte Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

6.2 Run Satrack_client

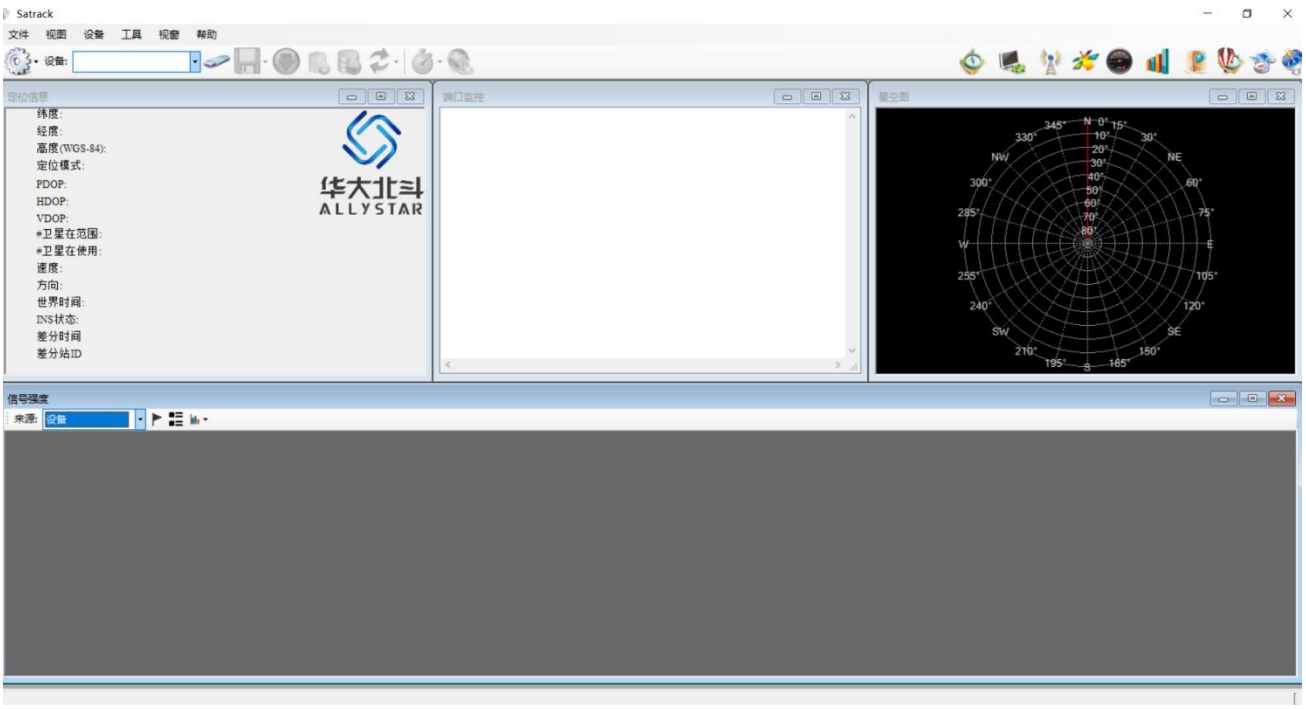
For the convenience of use, it is recommended to use the exclusive tool Satrack_client for debugging. For detailed usage, please refer to the "Satrack User Manual" . (Download from the official website)

1. Run GnssToolKit3, as shown below :

2. Select the corresponding serial port and configure the baud rate . After the connection is successful, you can see the reported data in the NMEA window.

Note: For detailed meaning, please refer to the description in NMEA0183 protocol .

3. After successful positioning, you can get the longitude and latitude information in the $GPRMC field reported by the serial port. For more detailed tool usage information, please refer to the user manual in the tool kit.



Copyright ©2012–2025，Chengdu Ebyte Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Chapter 7 Instruction Format

7.1 Instruction Format

For detailed command format, please refer to the T-5-2302-ALLYSTAR GNSS Receiver Binary Protocol Specification-V2.3.8.pdf document downloaded from the official website for configuration, or you can directly download the host computer Satrack_client from the official website and configure it in conjunction with the manual T-5-2104-HuaDa BeiDou GNSS Evaluation Software Satrack User Manual-V1.1.pdf.

7.2Support NMEA0183 protocol

GK9501 supports NMEA0183 V4.1 protocol and is compatible with previous versions. For detailed information about NMEA0183 V4.1, please refer to the official document of NMEA 0183 V4.1. Common output formats are as follows:

GGA: time, location, number of satellites

GSA: GPS receiver operation mode, satellites used for positioning, DOP value, positioning status

RMC : time, date, position, speed;

ZDA:UTC time

GSV: visible GPS satellite information, elevation, azimuth, signal-to-noise ratio RMC: time, date, position, speed

VTG: Ground speed information

7.2.1 Statement identifiers

Identifier	meaning
BD	BeiDou Navigation Satellite System (BDS)
GP	GPS
GL	GLONASS
GA	Galileo
GN	GNSS, Global Navigation Satellite System

7.2.2 GGA

$--GGA,hhmmss.ss,llll.ll,a,yyyyy.yy,a,x,xx,xx,xx,M,xx,M,xx,xxxx*hh

Sample data: $GPGGA,065545.789,2109.9551,N,12023.4047,E,1,9,0.85,18.1,M,8.0,M,,*5E

name	Example	unit	describe
Message ID	$GPGGA		GGA protocol header
UTC time	065545.789		hhmmss.sss
latitude	2109.9551		ddmm.mmmm
N/S Indication	N		N=North, S=South

Copyright ©2012–2025，Chengdu Ebyte Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

longitude	12023.4047		ddddmm.mmmm
E/W indication	E		W=West, E=East
Positioning Instructions			0: Not positioned 1: SPS mode, positioning is valid 2: Differential, SPS mode, positioning valid 3:PPS mode, positioning is valid
Number of satellites	9		Range 0 to 12
HDOP	0.85		Horizontal accuracy
MSL Amplitude	18.1	rice	
unit	M	rice	
Earth	-2.2	rice	
unit	M		-
Differential Time	8.0	Second	Invalid when there is no DGPS
Differential ID	0000		
Checksum	*5E		
<CR><LF>			End of message

7.2.3 GSA

$--GSA,a,a,x,x,x,x,x,x,x,x,x,x,x,x,x,x,xx,xx,xx*hh

Sample data: $GPGSA,A,3,10,24,12,32,25,21,15,20,31,,,,1.25,0.85,0.91*04

name	Example	unit	describe
Message ID	$GPGS		GSA protocol header
Mode 1	A		M = Manual, force 2D or 3D mode A=Automatic
Mode 2	3		1: Positioning invalid ; 2: 2D positioning ; 3: 3D positioning
Satellite use	10		Channel 1
Satellite use	twenty four		Channel 2
Satellite use	12		Channel 3
Satellite use	32		Channel 4
Satellite use	25		Channel 5
Satellite use	twenty one		Channel 6
Satellite use	15		Channel 7
Satellite use	20		Channel 8
...	...	...	...
Satellite use			Channel 12
PDOP	1.25		Position accuracy
HDOP	0.85		Horizontal accuracy
VDOP	0.91		Vertical accuracy

Copyright ©2012–2025，Chengdu Ebyte Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Checksum	*04		
<CR><LF>			End of message

7.2.4 GSV

$--GSV,x,x,x,x,x,x,x,...*hh

Sample data:

$GPGSV,3,1,12,14,75,001,31,32,67,111,38,31,57,331,33,26,47,221,20*73

$GPGSV,3,2,12,25,38,041,29,29,30,097,32,193,26,176,35,22,23,301,30*47

$GPGSV,3,3,12,10,20,185,28,44,20,250,,16,17,217,21,03,14,315,*7D

name	Example	unit	describe
Message ID	$GPGSV		GSV protocol header
Number of messages	3		Range 1 to 3
Message number	1		Range 1 to 3
Number of satellites	12		
Satellite ID	14		Range 1 to 32
Elevation	75	Spend	Max. 90°
Azimuth	001	Spend	Range 0 to 359°
Carrier to Noise Ratio (C/No)	31	dBHz	Range 0 to 99, empty if no trace is found
Satellite ID	32		Range 1 to 32
Elevation	67	Spend	Max. 90°
Azimuth	111	Spend	Range 0 to 359°
Carrier to Noise Ratio (C/No)	38	dBHz	Range 0 to 99, empty if no trace is found
Satellite ID	31		Range 1 to 32
Elevation	57	Spend	Max. 90°
Azimuth	331	Spend	Range 0 to 359°
Carrier to Noise Ratio (C/No)	33	dBHz	Range 0 to 99, empty if no trace is found
Satellite ID	26		Range 1 to 32
Elevation	47	Spend	Max. 90°
Azimuth	221	Spend	Range 0 to 359°
Carrier to Noise Ratio (C/No)	20	dBHz	Range 0 to 99, empty if no trace is found
Checksum	*73		
<CR><LF>			End of message

7.3.5 RMC

$--RMC,hhmmss.ss,A,llll.ll,a,yyyyy.yy,a,xx,xx,xxxx,xx,a*hhSample data:

$GPRMC,100646.000,A,3109.9704,N,12123.4219,E,0.257,335.62,291216,,,A*59

Copyright ©2012–2025，Chengdu Ebyte Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

name	Example	unit	describe
Message ID	$GPRMC		RMC protocol header
UTC time	100646.000		hhmmss.ss
state	A		A = data is valid; V = data is invalid
latitude	2109.9704		ddmm.mmmm
N/S Indication	N		N=North, S=South
longitude	11123.4219		ddddmm.mmmm
E/W indication	E		W=West, E=East
Ground speed	0.257	Knot	
position	335.62	Spend	
date	291216		ddmmyy
Magnetic variables			-
Checksum	*59		
<CR><LF>			End of message

7.2.5 VTG

$--VTG,xx,T,xx,M,xx,N,xx,K*hh

Sample data: $GPVTG,335.62,T,,M,0.257,N,0.477,K,A*38

name	Example	unit	describe
Message ID	$GPVTG		VTG protocol header
position	335.62	Spend	
refer to	T		True
position	335.62	Spend	
refer to	M		Magnetic
speed	0.257	Knot	
unit	N		Festival
speed	0.477	km/h	
unit	K		km/h
unit	A		Positioning system mode indication: A—autonomous mode; D—differential mode; E—Estimation (dead reckoning) mode; M— Manual input mode; S—Simulator mode; N—The data is invalid.
Checksum	*10		
<CR><LF>			End of message

Copyright ©2012–2025，Chengdu Ebyte Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Chapter 8 Frequently asked questions

8.1 The transmission distance is not ideal

- When there is a straight-line communication obstacle, the communication distance will be attenuated accordingly ;
- Temperature, humidity, and co-channel interference can increase the communication packet loss rate ;
- The ground absorbs and reflects radio waves, so the test results are poor when close to the ground ;
- Seawater has a strong ability to absorb radio waves, so the test effect at the seaside is poor ;
- If there are metal objects near the antenna, or the antenna is placed in a metal shell, the signal attenuation will be very serious ;
- The power register is set incorrectly, or the air rate is set too high (the higher the air rate, the closer the distance) ;
- The power supply voltage is lower than the recommended value at room temperature. The lower the voltage, the lower the power output .

8.2 Module is easily damaged

- Please check the power supply to ensure that it is within the recommended power supply voltage. If it exceeds the maximum value, the module will be permanently damaged .
- Please check the stability of the power supply. The voltage should not fluctuate greatly or frequently .
- Please ensure anti-static operation during installation and use, as high-frequency components are sensitive to static electricity ;
- Please ensure that the humidity is not too high during installation and use, as some components are humidity sensitive devices ;
- If there is no special requirement, it is not recommended to use it at too high or too low temperature.

Chapter 9 Welding work instructions

9.1 Reflow Temperature

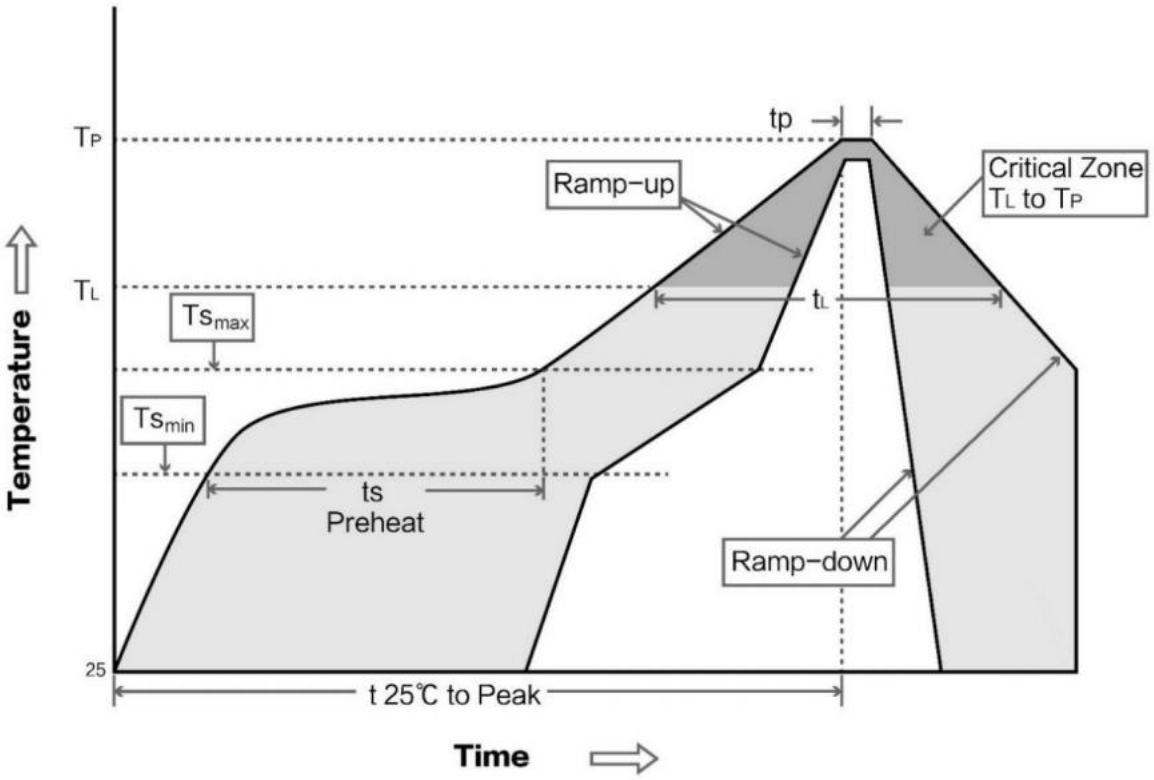
Profile Feature	Curve characteristics	Sn-Pb Assembly	Pb-Free Assembly
Solder Paste	Solder Paste	Sn63/Pb37	Sn96.5/Ag3/Cu0.5
Preheat Temperature min(Tsmin)	Minimum preheating temperature	100℃	150℃
Preheat temperature max(Tsmax)	Maximum preheating temperature	150℃	200℃
Preheat Time(Tsmin to Tsmax)(ts)	Warm-up time	60-120 sec	60-120 sec
Average ramp-up rate(TsmaxtoTp)	Average ascent rate	3℃/second max	3℃/second max

Copyright ©2012–2025，Chengdu Ebyte Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Liquidous Temperature(TL)	Liquidus temperature	183℃	217℃
Time(tL)MaintainedAbove(TL)	Time above liquidus	60-90 sec	30-90 sec
Peak temperature(Tp)	Peak temperature	220-235℃	230-250℃
Aveage ramp-downrate(TptoTsmax)	Average descent rate	6℃/second max	6C/second max
Time 25° to peak temperature 25℃	Time to peak temperature	6 minutes max	8 minutes max

9.2 Reflow Oven Curve



Copyright ©2012–2025，Chengdu Ebyte Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Chapter 10 Related Models

Product Model	Chip Solution	Support satellite	Package	Product size mm	Communication interface
E108-GN02	-	BDS/GPS/GLONASS	Patches	10.1*9.7*2.4	UART/GPIO
E108-GN02D	-	BDS/GPS/GLONASS	-	22*20* 7 .8	UART
E108-GN02S	-	BDS/GPS/GLONASS	Patches	16*12*2.4	UART/GPIO
E108-GN04	-	BDS/GPS/GLONASS/GAL ILEO	Patches	9.7*10.5*2.4	UART/GPIO
E108-GN04S	-	BDS/GPS/GLONASS/GAL ILEO	Patches	12.2*16.0*2.4	UART/GPIO
E108-GN04D	-	BDS/GPS/GLONASS/GAL ILEO	-	20.0*22.0*7.8	UART

Copyright ©2012–2025，Chengdu Ebyte Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Revision History

Version	Revision Date	Revision Notes	Maintainer
V1.0	2024-12-10	First edition	Bin
V1.1	2025-02-08	Correct the model annotation of the recommended wiring diagram	Bin

About Us

Sales hotline: 4000 - 330 - 990

Technical support: support@cdebyte.com

Official website:https://www.cdebyte.com

Company Address: Building B2 , No. 199, Xiqu Avenue, West Hi-Tech Zone, Chengdu , Sichuan

成都亿佰特电子科技有限公司
Chengdu Ebyte Electronic Technology Co.,Ltd.

Copyright ©2012–2025，Chengdu Ebyte Electronic Technology Co., Ltd.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000