



Accurate
positioning

22°43'59.57617"N 114°03'03.61546"E



JS-ATP18-2

Product Specifications

Datasheet



Shenzhen Jumpstar Technology Co.,Ltd

Email : info@jumpstar-tech.com

Tel : (86) 0755-23732282

Fax : (86) 0755-23732823

Add : Room 1305, Building A, Lechuanghui Building, No. 1211
Guangguan Road, Guanlan Street, Longhua District, Shenzhen

Table of Contents

Revision History	2
1 Functional Description	3
1.1 Overview	3
1.2 Product Features	3
1.3 Performance	3
1.4 Protocol	5
1.5Antenna	5
1.6Product Applications	5
2 Pin Definitions	5
2.1 Definition of Pin Assignment	5
3 Electrical Specifications	6
4 Mechanical Specifications	6
5 Interface Configuration Options	6
5.1 Interface Description	6
5.1.1 Block Diagram	7
5.1.2 Application Circuit	7
6 ROHS	7
7 NMEA	7
7.1 NMEA Protocol	8
7.2 Standard Information	10
7.2.1 GGA	10
7.2.2 GLL	10
7.2.3 GSA	11
7.2.4 GSV	11
7.2.5 RMC	12
7.2.6 VTG	12
7.2.7 ZDA	13
8 Common Command Switches	14



Revision History

Revision	Date	Content of Changes	Comments
V1.0	2022-05-11	First Release	W
V1.1	2022-05-18	Power Supply Voltage Range & Antenna Specifications Modification	W
V1.2	2022-05-30	Partial Parameter Correction	W
V1.3	2023-02-02	Added Protocol Description and Instruction Set	W
V1.4	2023-02-18	Modified Protocol Description	W

1 Functional Description

1.1 Overview

JS-A T P 18 - 2 adopts a multi-mode solution, low power consumption, and low cost. It is a multi-mode single-frequency (GPS, BDS, GLONASS, Galileo, QZSS, and SBAS) positioning module , developed to meet the requirements of a wide range of applications and end products. Based on a high-performance SOC positioning engine, this receiver offers excellent sensitivity and acquisition time, with interference suppression measures, even under difficult signal conditions, it can achieve reliable positioning.

1.2 Product Features

- Based on high-performance GNSS SOC series
- 47channelsnumber
- Cold start acquisition sensitivity of -148dBm, tracking sensitivity of -165dBm
- Up to10Hz navigation update rate
- Supports GPS, BDS, GLONASS, Galileo, QZSS, and SBAS
- Supports AGPS
- Indoor and outdoor multipath detection and compensation
- Integrated 12-tone active interference canceller
- Integrated TCXO, LNA, SAW, and RTC
- Compact size (18.0 mm x 18 .0mm x 6.7mm±0.3mm), suitable for space-sensitive applications
 - Supports standard NMEA 0183 V 3.01 /V4.10
- Supports 1PPS output

1.3 Performance

Parameters	Specifications	
Constellation Frequency	■GPS/QZSS L1C L1C/A ■GLONASS L1 ■BDS B1I B1C ■Galileo E1 ■SBAS WAAS/EGNOS/MSAS/GAGAN	
Sensitivity	Tracking and Navigation	-165dBm
	Cold Start	-148dBm
First Fix Time ¹	Cold Start	24s
	Hot Start	1s
GNSS Positioning Accuracy ²	Horizontal	1.5m
	Vertical	2.25m
Time Pulse Signal Accuracy	1PPS	10ns
Speed Accuracy ³	GNSS	0.1m/s
	SBAS	0.05m/s
Operational Limits ⁴	Acceleration	4g
	Altitude Limit	10000m
	Speed Limit	100m/s
Time Pulse Signal Frequency	1Hz	
Baud Rate	4800-921600 bps (default 115200 bps) ⁵	
Maximum Navigation Update Rate	10Hz (default is 1Hz)	

¹ All satellites at -130dBm

² Open sky, 24 hours stationary, -130dBm, >6SVs, CEP 50%

³ 50%@30m/s dynamic operation

⁴ Assuming airborne ≤4g platform

⁵ Opening debuglog requires support for higher baud rates above 230400bps

1.4 Protocol

Protocol	Type
NMEA 0183 V3.01/V4.10	Input/Output, ASCII

1.5Antenna

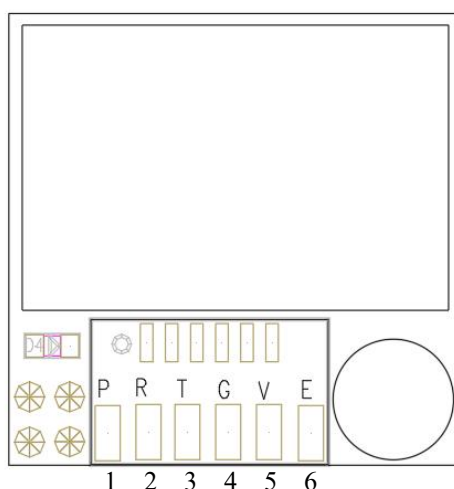
Parameters	Specifications
Passive antenna type	18.0*18.0*4.0mm

1.6Product Applications

- Automotive applications
- Intelligent logistics scheduling
- Intelligent robots
- Formation drones
- Maritime navigation, fleet management
- Automotive navigation and tracking
- Handheld terminals
- Emergency rescue

2 Pin definition

2.1 Definition of Pin Assignment



No.	Name	I/O	Description
1	PPS	O	Time Pulse Signal Output
2	RXD	I	TTL Input
3	TXD	O	TTL Output

4	GND	G	Ground
5	VCC	P	Power Supply
6	EN	I	Module Power Control Switch

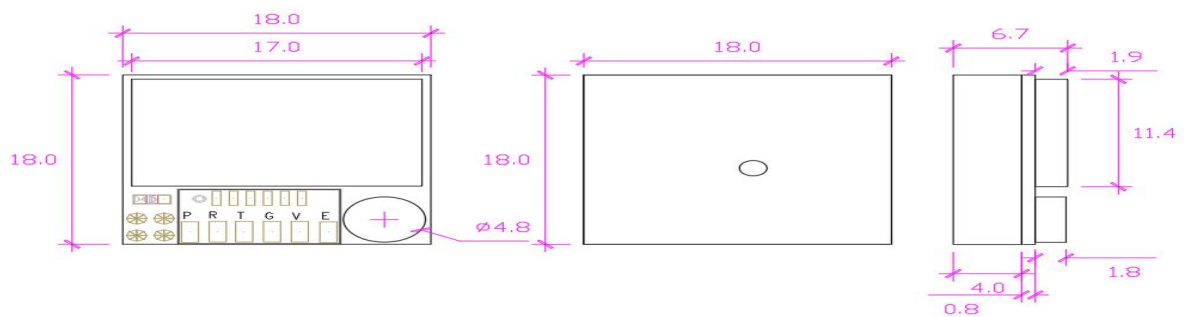
3 Electrical Specifications

Parameters	Symbol	Minimum	Typical	Maximum	Unit
Power Supply Voltage	VCC	2.8	5.0	5.5	V
Average Power Supply Current	Gain	31@5.0V	34@5.0V	38@5.0V	mA
	Tracking	30@35.0V	32@5.0V	35@5.0V	mA
Backup Battery			0.07		F
Backup Battery Current	I_BCKP		11@3.3V		uA
Digital Input/Output Voltage	Div	2.8	3.3	3.3	V
Storage Temperature	Tstg	-40		85	°C
Operating Temperature ¹	Topr	-40		85	°C
Farad Capacitor ²	Tstg	-25		60	°C
Humidity				95	%

¹ This temperature range is the operating temperature range without a Farad capacitor

² When the temperature is below -25°C or above 60°C, this module cannot perform a hot start

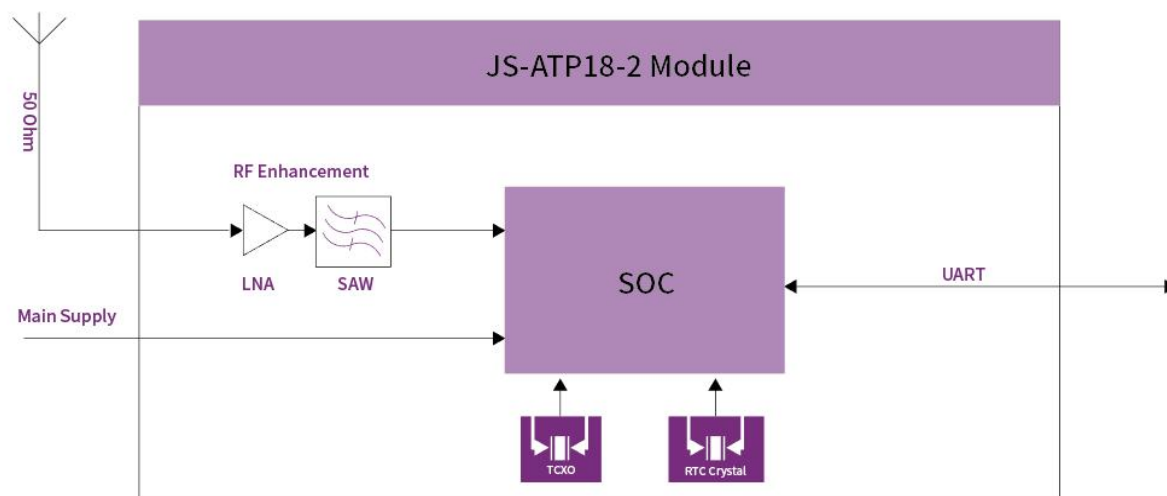
4 Mechanical Specifications



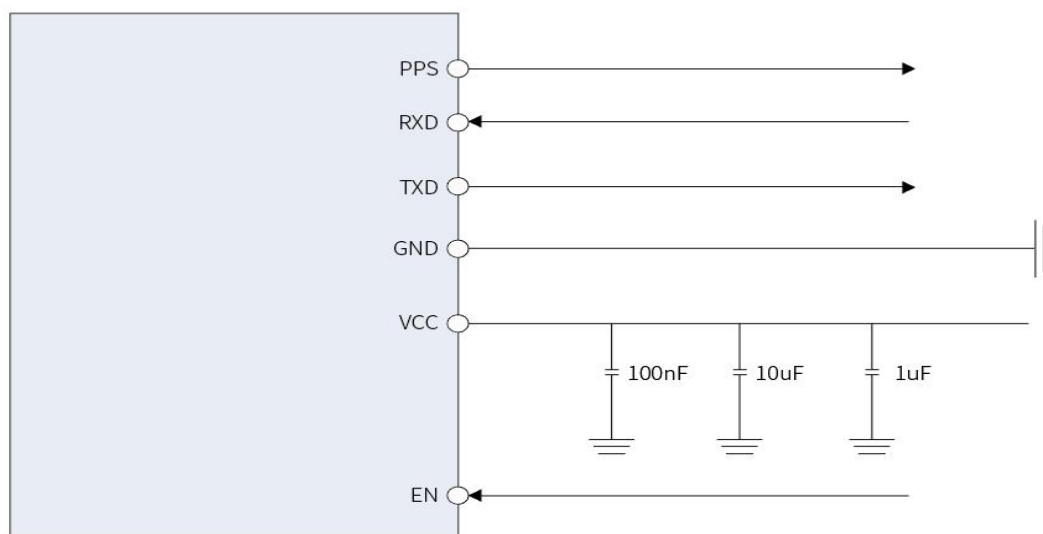
Unit: mm Dimensional Tolerance: $\pm 0.3\text{mm}$

5 Interface Configuration Options

5.1 Interface Description



5.1.2 Application Circuit



6 ROHS

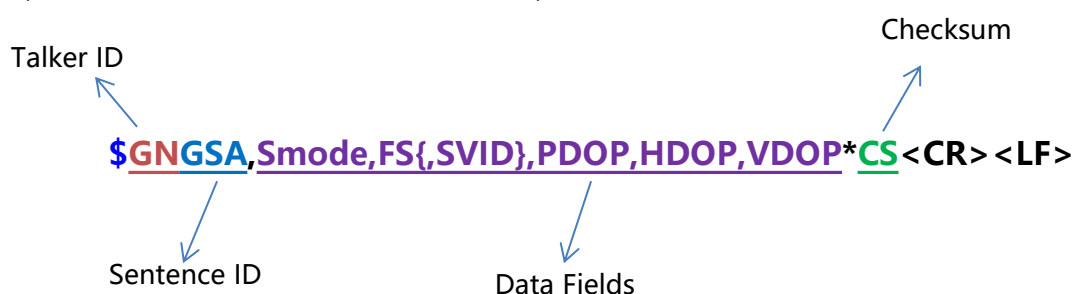
This product complies with the RoHS standards

7 NMEA

This module supports the National Marine Electronics Association (NMEA) messages based on NMEA 0183 v3.01/v4.10. The following section presents the structure of NMEA protocol messages and the corresponding generic standard message formats.

7.1 NMEA Protocol

Generally, NMEA messages start with a \$ character, followed by the talker ID, sentence ID, data fields, and checksum, and then end with '<CR>' '<LF>', as shown below.



Detailed Explanation of NMEA Protocol

Parameters	String Length	Description
Preamble Code	1	\$
Talker ID	2	Applicable to various GNSS configurations, such as GP/GL/GA/GB/GN
Sentence ID	3	Field description, such as GGA/GSA/GSV/RMC
Data Field	~	A comma symbol must be inserted before each data field to assist the decoder in processing the Data Field
*	1	An asterisk * marks the end of the Data Field
Checksum	2	Checksum of the data between the preamble code and *
CR, LF	2	These two bytes are used to identify the end of the data packet

Talker ID description

Talker ID	Description
GP	GPS
GL	GLONASS
GA	Galileo

GB*	Beidou
GI*	NavIC
GN	Multi-GNSS

* NMEA v3.01/v4.10 does not define Beidou /NavIC Talker ID. GB / GI are only defined in NMEA v4.11.

Sentence ID description

Sentence ID	Description
GGA	Receiver positioning data
GLL	Latitude and longitude, with time positioning and status
GSA	Dilution of Precision (DOP) and effective satellites
GSV	Visible satellite information
RMC	Recommended Minimum Specific GNSS Data
VTG	Ground Track and Ground Speed
ZDA	GNSS Date and Time

Different GNSS System Talker ID Display(For NMEA 0183 v3.01)

Talker ID	GPS only	GLONASS only	Galileo only	Beidou only	NavIC only	Multi-GNSS GPS+GLO+GAL+BDS+NavIC
GGA	GP	GL	GA	GB*	GI*	GN
GLL						
RMC						
VTG						
ZDA						
GSA**						GP+GL+GA+GB+GI
GSV						

Different GNSS System Talker ID Display(For NMEA 0183 v4.10)

Talker ID	GPS only	GLONASS only	Galileo only	Beidou only	NavIC only	Multi-GNSS GPS+GLO+GAL+BDS+NavIC
GGA	GP	GL	GA	GB*	GI*	GN
GLL						
RMC						
VTG						
ZDA						
GSA**						GP+GL+GA+GB+GI
GSV						

* NMEA v3.01/v4.10 does not define Beidou/NavIC Talker ID. GB / GI are only defined in NMEA v4.11.

** The difference between NMEA 0183 v3.01 and v4.10 for Talker ID is GSA.

7.2 Standard Information

The standard NMEA messages are GGA/GLL/GSA/GSV/RMC/VTG/ZDA. NMEA Statements The definitions of satellite ID, system ID, and signal ID in are as shown in the following table. Below are the details of these messages based on NMEA 0183 v4.10.

7.2.1 GGA

Fixation of time, location, and related data. The output location will be affected by the chosen datum. The default data is WGS84.

\$--GGA,hhmmss.sss,ddll.llll,a,ddyyy.yyyy,a,x,xx,x.xx,x.x,M,x.x,M,x.x,xxxx*hh<CR><LF>

No.	Format	Description
1	hhmmss.sss	Current UTC time of positioning
2	ddll.llll,a	Latitude(degree-minute format)- N / S
3	ddyyy.yyyy,a	Longitude (degree-minute format) - E / W
4	x	GNSS Quality Indicator
5	xx	Number of satellites in use, which may differ from the number seen
6	x.xx	Horizontal Dilution of Precision
7	x.x,M	Altitude above mean sea level (geoid), unit: M
8	x.x,M	Geoid separation, unit: M
9	x.x	Age of Differential GPS data
10	xxxx	Differential reference station ID, 0000-1023

7.2.2 GLL

Positioning time and status.

\$--GLL,ddll.llll,a,ddyyy.yyyy,a,hhmmss.sss,A,a*hh<CR><LF>

No.	Format	Description
1	ddll.llll,a	Latitude (degree-minute format) - N / S

2	ddddd.yyyy,a	Longitude (degree-minute format) - E / W
3	hhmmss.sss	Current UTC time of positioning
4	A	Status A = Data valid, V = Data invalid
5	a	Positioning status indicator. A=Autonomous mode, V=Estimated mode (dead reckoning), N=Invalid, D=Differential mode

7.2.3 GSA

Dilution of Precision (DOP) and Effective Satellites.

\$--GSA,a,x,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,xx,x.xx,x.xx,x.xx,h*hh<CR><LF>

No.	Format	Description
1	a	Mode: M = Manual, force 2D or 3D mode; A = Automatic, allows 2D/3D auto-switching
2	x	Mode: 1 = Not available, 2 = 2D, 3 = 3D
	xx	Satellite numbers used for positioning, this field displays 12 available satellite
3		numbers, only the first 12 are outputted if there are more than 12, and the area is filled with blanks if there are less than 12 (refer to NMEA sentences for Satellite ID)
4	x.xx	PDOP
5	x.xx	HDOP
6	x.xx	VDOP
7	h	GNSS System ID (1:GPS, 2:GLONASS, 3:Galileo, 4:Beidou, 6:NavIC) (Only supports NMEA v4.10 format, refer to NMEA sentences for system, signal ID)

7.2.4 GSV

Observed GNSS satellite numbers, PRN, elevation angle, azimuth, and signal-to-noise ratio.

\$--GSV,x,x,xx,xx,xx,xxx,xx,.....,xx,xx,xxx,xx,h*hh<CR><LF>

No.	Format	Description
1	x	Total number of sentences

2	x	Current sentence number
3	xx	Total number of visible satellites
4	xx	Satellite number
5	xx	Elevation angle, up to 90°
6	xxx	Azimuth, 000 to 359°
7	xx	Signal-to-noise ratio (C/No) 00- 99 dB-Hz, blank if not tracking
8	h	Signal ID (only supports NMEA v4.10 format, refer to NMEA sentences for system, signal ID)

7.2.5 RMC

Recommended minimum specific GNSS data, i.e., position, SOG, COG, and time.

\$--RMC,hhmmss.sss,A,ddll.llll,a,ddyyy.yyyy,a,x.xx,x.xx,xxxxxx,x.x,a,a*hh<CR><LF>

No.	Format	Description
1	hhmmss.sss	Current UTC time of positioning
2	A	Status A = Autonomous mode, V = Invalid, D = Differential mode
3	ddll.llll,a	Latitude (degree-minute format) - N / S
4	ddyyy.yyyy,a	Longitude (degree-minute format) - E / W
5	x.xx	Speed over ground, unit: knots
6	x.xx	True heading over ground, unit: degrees
7	xxxxxx	Date (ddmmyy)
8	x.x,a	Magnetic declination, unit: degrees. Magnetic declination direction: E-East, W-West. Fixed to be empty
9	a	Status bar. A=Autonomous mode, V=Estimated mode (dead reckoning), N=Invalid, D=Differential mode
10	a	Navigation status (only supports NMEA v4.10 format)

7.2.6 VTG

Course Over Ground (COG) and Speed Over Ground (SOG) information.

\$--VTG,x.xx,T,x.xx,M,x.xx,N,x.xx,K,a*hh<CR><LF>

No.	Format	Description
-----	--------	-------------

1	x.xx	True north course over ground, unit: degrees (000-359°)
2	T	True north indicator, fixed to T
3	x.xx	Magnetic north course over ground, unit: degrees (000-359°)
4	M	Magnetic north indicator, fixed to M
5	x.xx	Speed over ground, unit: knots (000-999 knots)
6	N	Speed unit knots, fixed to N = nautical miles/hour
7	x.xx	Speed over ground (000-999 kilometers/hour)
8	K	Speed unit, fixed at K=kilometers/hour
9	a	Positioning mode status. A=Autonomous mode, V=Estimated mode (dead reckoning), N=Invalid, D=Differential mode

7.2.7 ZDA

GNSS time and date.

\$ --ZDA,hhmmss.sss,xx,xx,xxxx,xx,xx*hh<CR> <LF>

No.	Format	Description
1	hhmmss.sss	UTC time, hhmmss (hour minute second) format
2	xx	UTC date, 01 to 31 days
3	xx	UTC date, 01 to 12 months
4	xxxx	UTC date, year
5	xx	Current time, hour
6	xx	Current time, minute

Satellite ID in NMEA sentence

Constellation	PRN numbers	Satellite ID (AIROHA)	Satellite ID (NMEA 0183 v4.10)
GPS	1-32	1-32	1-32
SBAS	120-138	33-51	33-64
GLONASS	1-24	65-88	65-99
Galileo	1-36	1-36	1-36
Beidou	1-63	1-63	N/A
QZSS	193-199	193-199	N/A
NavIC	1-14	1-14	N/A

System/Signal ID in NMEA sentence

Constellation	System ID (AIROHA)	Signal ID (AIROHA)	System ID (NMEA 0183 v4.10)	Signal ID (NMEA 0183 v4.10)
GPS L1C/A	1	1	1	1
GPS L5Q	1	8	1	8
GLONASS L1	2	1	2	1
GalileoE1-BC	3	7	3	7
Galileo E5a	3	1	3	1
Beidou B1I	4*	1*		
Beidou B2a	4*	4*		
NavIC L5	6*	1*		

* Beidou/NavIC is not defined in NMEA v4.10

8 common command switches

Since the checksum of each command is different, other configuration commands not given in the common configurations below must be verified before they can be applied.

Response Result Comparison Table for Command Sent

Data Format	\$PAIR001,<Command_ID>,<Result>*CS<CR><LF>	
Description	Command_ID: The command/message type is for confirmation response	
	Result: The result of the command execution 0, 1, 2, 3, 4, 5 as follows	
●	0	Command sent successfully
●	1	Indicates that the command is being processed, please wait for the result
●	2	Failed to send command
●	3	Indicates that the command ID is not supported
●	4	Command parameter error (out of range/some parameters missing/checksum error)
●	5	MNL server is busy. You can try again soon

Note: The above are the response results of the command. This command is automatically sent by the GNSS system. Do not send it directly to the GNSS system

POWER_ON/POWER_OFF

1	\$PAIR002*38\r\n	POWER_ON (Please send this command before using any location service)
After sending the command, return \$PAIR001,002,1*38 ==> Power-on process is running. Please wait		

\$PAIR001,002,0*39 ==> Boot successful		
2	\$PAIR003*39	POWER_OFF(After executing this command, location service is unavailable)
After sending the command, return \$PAIR001,003,1*39 ==> Power down process is running. Please wait		
\$PAIR001,003,0*38 ==> Shutdown successful		

Save command

1	\$PAIR513*3D\r\n	Save the current configuration from RTC RAM to flash
After sending the command, return \$PAIR001,003,1*39 ==> Success		
Note: If the module is outputting at multiple Hz, send \$PAIR003*39 to make the system POWER_OFF before executing this command, while there is no such restriction at 1Hz		

Supports constellation configuration

Data Format	\$PAIR066,<GPS_Enabled>,<GLONASS_Enabled>,<Galileo_Enabled>,<BeiDou_Enabled>,<QZSS_Enabled>,<NavIC_Enabled>*CS		
Example	\$PAIR066,1,1,1,1,1,0*3B		
Description	"0" Disable (do not search for satellites); "1" Enable (search for satellites)		
	Command (Send)	Output Information	Description
1	\$PAIR066,1,1,1,1,1,0*3B\r\n	GPS+GLONASS+Galileo+BDS+QZSS	Support for L1
2	\$PAIR066,1,0,0,0,0,0*3B\r\n	GPS	Frequency
3	\$PAIR066,1,1,0,0,0,0*3A\r\n	GPS+GLONASS	Constellation
4	\$PAIR066,1,0,1,0,0,0*3A\r\n	GPS+Galileo	Combination
5	\$PAIR066,1,0,0,1,0,0*3A\r\n	GPS+BDS	Configuration
After sending command, return \$PAIR001,066,0*3B ==> Success			

Close NMEA Sentence Command

1	\$PAIR062,0,0*3E\r\n	Close GGA Sentence
2	\$PAIR062,1,0*3F\r\n	Close GLL Sentence
3	\$PAIR062,2,0*3C\r\n	Close GSA Sentence
4	\$PAIR062,3,0*3D\r\n	Close GSV Sentence
5	\$PAIR062,4,0*3A\r\n	Close RMC Sentence
6	\$PAIR062,5,0*3B\r\n	Close VTG Sentence
7	\$PAIR062,6,0*38\r\n	Close ZDA Sentence
8	\$PAIR062,7,0*39\r\n	Close GRS Sentence
9	\$PAIR062,8,0*36\r\n	Close GST Sentence
After sending command, return \$PAIR001,062,0*3F ==> Success		

Open NMEA Sentence Command (default output once per second)

1	\$PAIR062,0,1*3F\r\n	Open GGA Sentence
2	\$PAIR062,1,1*3E\r\n	Open GLL Sentence
3	\$PAIR062,2,1*3D\r\n	Open GSA Sentence
4	\$PAIR062,3,1*3C\r\n	Open GSV Sentence
5	\$PAIR062,4,1*3B\r\n	Open RMC statement
6	\$PAIR062,5,1*3A\r\n	Open VTG statement
7	\$PAIR062,6,1*39\r\n	Open ZDA statement
8	\$PAIR062,7,1*38\r\n	Open GRS statement

9	\$PAIR062,8,1*37\r\n	Open GST statement
After sending command, return \$PAIR001,062,0*3F ==> Success		
Set navigation mode		
Format	\$PAIR080,<CmdType>*CS<CR><LF>	
Example	\$PAIR080,1*2F ==> Enter fitness mode	
1	\$PAIR080,0*2E\r\n	Normal mode
2	\$PAIR080,1*2F\r\n	Fitness mode (for running and walking activities <5m/s)
3	\$PAIR080,4*2A\r\n	Standby mode (this module is not supported yet)
4	\$PAIR080,5*2B\r\n	Drone mode (such as hovering, cruising, etc.)
5	\$PAIR080,7*29\r\n	Swimming mode
6	\$PAIR080,9*27\r\n	Bicycle mode (this module is not supported yet)
After sending the command, return \$PAIR001,080,0*33 ==> Success		
Note: If ULP (Ultra Low Power) is enabled, setting to non-fitness mode will fail		
Static Drift Setting		
Format	\$PAIR070,<Speed_threshold>*CS<CR><LF>	
1	\$PAIR070,0*21\r\n	Static drift setting is 0 dm/s (default)
2	\$PAIR070,1*20\r\n	Static drift setting is 1 dm/s
3	\$PAIR070,4*25\r\n	Static drift setting is 4 dm/s
4	\$PAIR070,10*10\r\n	Static drift setting is 10 dm/s
5	\$PAIR070,20*13\r\n	Static drift setting is 20 dm/s
Note:<Speed_threshold> is 1 dm/s~20 dm/s (1 dm/s = 0.1m/s)		
After sending the command, return \$PAIR001,070,0*3C ==>Success		
Query Static Drift Speed Threshold		
1	\$PAIR071*3C\r\n	Static Drift Speed Threshold Query Command
After sending the command, return \$PAIR001,071,0*3D ==> Success		
\$PAIR071,0.4*3A ==> Static drift speed threshold is 0.4m/s (minimum threshold 0.1m/s, maximum 2.0m/s)		
Cold and Hot Start Setting Instructions		
1	\$PAIR004*3E\r\n	Hot Start
2	\$PAIR005*3F\r\n	Warm Start
3	\$PAIR006*3C\r\n	Cold Start
Sentence Output Frequency Setting		
Format	\$PAIR062,<NMEA Type>,<Output Frequency>*CS<CR><LF>	
Example	\$PAIR062,0,3*3D → Outputs a GGA sentence once every 3 seconds	
NMEA Type	0=GGA、1=GLL、2=GSA、3=GSV、4=RMC、5=VTG、6=ZDA、7=GRS、8=GST	
Output Frequency	0=No output,1= Once per second,2= Every 2 seconds, 5= Every 5 seconds, and so on, (can be set from 0 -- 20, default is once per second)	
1	\$PAIR062,0,1*3F\r\n	Outputs a GGA sentence once per second-- 1Hz
2	\$PAIR062,1,1*3E\r\n	Outputs a GLL sentence once per second-- 1Hz
3	\$PAIR062,2,1*3D\r\n	Outputs a GSA sentence once per second-- 1Hz
4	\$PAIR062,3,1*3C\r\n	Outputs a GSV sentence once per second-- 1Hz
5	\$PAIR062,4,1*3B\r\n	Outputs an RMC sentence once per second-- 1Hz

6	\$PAIR062,5,1*3A\r\n	Outputs one VTG sentence per second -- 1Hz
7	\$PAIR062,6,1*39\r\n	Outputs one ZDA sentence per second -- 1Hz
8	\$PAIR062,7,1*38\r\n	Outputs one GRS sentence per second -- 1Hz
9	\$PAIR062,8,1*37\r\n	Outputs one GST sentence per second -- 1Hz
10	\$PAIR062,3,2*3F\r\n	Outputs one GSV sentence every 2 seconds-- 0.5Hz
11	\$PAIR062,3,5*38\r\n	Outputs one GSV sentence every 5 seconds -- 0.2Hz

Setting output less than 1000 milliseconds(range: 100~1000ms)**applicable only to GGA and RMC sentences**

1	\$PAIR050,1000*12\r\n	Outputs one GGA and RMC sentence per second -- 1Hz
2	\$PAIR050,500*26\r\n	Outputs two GGA and RMC sentences per second -- 2Hz
3	\$PAIR050,200*21\r\n	Outputs five GGA and RMC sentences per second -- 5Hz
4	\$PAIR050,100*22\r\n	Outputs ten GGA and RMC sentences per second -- 10Hz

Note: When configuring multiple Hz outputs, send the \$PAIR003*39 command (to turn off GNSS) before saving. If configuring to output once per second or once every few seconds, then you can directly send the save command.

Setting NMEA Output Format

Format	\$PAIR100,<NMEA Mode>,<Proprietary Mode>*CS<CR><LF>	
Example	\$PAIR100,1,0*3A ==> ASCII NMEA v4.1, no proprietary sentences output	
NMEA Mode	0=Disable NMEA, 1=ASCII NMEA v4.1(default), 2=ASCII NMEA v3.0	
Proprietary Mode	0=Do not output proprietary sentences (default), 1= Output proprietary sentences	
1	\$PAIR100,1,0*3A\r\n	Output ASCII NMEA v4.1, no proprietary sentences
2	\$PAIR100,2,0*39\r\n	Outputs ASCII NMEA v3.0, does not output proprietary sentences
3	\$PAIR100,0,1*3A\r\n	Outputs proprietary sentences, does not output NMEA sentences

Query NMEA output format

Format	\$PAIR101,<NMEA mode>,<proprietary mode>*CS<CR><LF>	
Example	Sending \$PAIR101*3A returns \$PAIR101,0,1*3B==>Disable NMEA output, enable proprietary sentences	
NMEA Mode	0=Disable NMEA, 1=ASCII NMEA v4.1(default), 2=ASCII NMEA v3.0	
Proprietary Mode	0=Do not output proprietary sentences(default),1=Output proprietary sentences, 2=Enable proprietary sentences and output before NMEA	
1	\$PAIR101*3A\r\n	NMEA output format query command

Set baud rate

1	\$PAIR864,0,0,9600*13\r\n	Supports 9600 bps
2	\$PAIR864,0,0,38400*23\r\n	Supports 38400 bps
3	\$PAIR864,0,0,57600*28\r\n	Supports 57600 bps
4	\$PAIR864,0,0,115200*1B\r\n	Supports 115200 bps
5	\$PAIR864,0,0,230400*19\r\n	Supports 230400 bps
6	\$PAIR864,0,0,460800*16\r\n	Supports 460800 bps
7	\$PAIR864,0,0,921600*10\r\n	Supports 921600 bps
8	\$PAIR864,0,0,3000000*2F\r\n	Supports 3000000 bps

Note: After modifying the port baud rate,[you need to restart the device](#). Changes will take effect after restarting.

Baud Rate Query Command

1	\$PAIR865,0,0*31\r\n	Port Baud Rate Query
---	----------------------	----------------------



Restore Default Settings

1	\$PAIR514*3A\r\n	Clear current configuration, restore default settings
---	------------------	---

Note: Before sending the command to restore default settings, you must first send \$PAIR003*39 ==> POWER_OFF

2	\$PAIR007*3D\r\n	Clear System/User Configuration
---	------------------	---------------------------------

Sleep Mode

1	\$PAIR382,0*2F\r\n	Unlock Sleep Mode
---	--------------------	-------------------

2	\$PAIR382,1*2E\r\n	Lock Sleep Mode (The system will not enter sleep mode)
---	--------------------	--

Note: **After sending the command, return** \$PAIR001,382,0*32 ==> Success