EICUT-E70x

GNSS AT Command

Read Manual

Version: 1.0

Date: 2025-10-06

Status: Released

Eicut, where innovation meets IOT projects

Email: info@eicut.com

On our website, for more information about latest updates please visit:

https://eicut.com.

To learn more about our products, please visit our wiki web page:

https://eicut.com/wiki.

Revision History

Date	Version	Description	Author
2025-10-06	1.0.0	Creation of the document	Sam

Contents

Table Index

1. Introduction

The module of E70X series integrates GNSS engine, which supports GPS, BDS, Galileo and GLONASS for multi-system hybrid positioning, providing customers with fast and accurate high-performance positioning experience. E70x series modules are widely used in the following fields: line-by-line navigation, asset tracking, wearable devices, vehicles and people tracking.

1.1. Applicable modules

Module series	Module
E70x	E70G

1.2. Turn on/off GNSS steps

The GNSS engine of the module supports the position calculation function without network assistance. The steps to turn GNSS on/off are as follows:

Step 1: Configure GNSS parameters through AT+MGPSCFG.

Step 2: Turn on GNSS through AT+MGPS.

Step 3: Turn on GNSS, and after successful positioning, you can obtain positioning information in the following three ways:

1) The NMEA statement is output to the USB NMEA port by default, and the NMEA statement can be obtained by reading this port.

2) Positioning information, such as latitude, longitude, altitude, GNSS positioning mode, Time, number of satellites, etc.

3) By setting AT+MGPSCFG="nmeasrc",1 enables obtaining the specified nmea through AT+MGPSNMEA. Statement; If AT+MGPSCFG="nmeasrc",0 is set, it cannot be obtained through AT+MGPSNMEA. The specified NMEA statement.

Step 4: execute AT+MGPSEND to turn off GNSS.

1.3. Supported NMEA statement types

The NMEA statement supported by the module by default is compatible with NMEA 0183 protocol. In addition, NMEA sentences of different satellite systems can be distinguished by five prefixes, as shown below:

The prefix of GPS NMEA statement is "GP", as follows:

● GPGGA: GPS positioning data, such as time and positioning, etc.

● GPRMC: recommended minimum dedicated GNSS data

● GPGSV: visible GNSS satellites, such as the number of visible satellites, satellite ID number, etc.

● GPGS: GNSS satellite ID number and accuracy factor involved in positioning.

● GPVTG: vector tracking and ground speed

The prefix of BEIDOU NMEA statement is "PQ" or "GB" or "BD", which can be configured by AT+MGPSCFG="beidounmeaformat ". Take "PQ" as an example, as follows:

● PQGSV: visible GNSS satellites, such as the number of visible satellites, satellite ID number, etc.

● PQGSA: GNSS satellite ID number and accuracy factor involved in positioning.

● PQGGA: GPS positioning data, such as time and positioning, etc.

● PQRMC: recommended minimum dedicated GNSS data.

● PQVTG: Vector Tracking and Ground Speed.

The prefix of mixed positioning NMEA statement is "GN", as shown below:

● GNGSA: GNSS satellite ID number and accuracy factor involved in positioning.

● GNGGA: GPS positioning data, such as time and positioning, etc.

● GNRMC: recommended minimum dedicated GNSS data.

● GNVTG: vector tracking and ground speed

The prefix of GLONASS nmea statement is "GL", as shown below:

● GLGSV: visible GNSS satellites, such as the number of visible satellites, satellite ID number, etc.

The GLONASS NMEA statement is prefixed with "GL", as follows:

● GLGSV: visible GNSS satellites, such as the number of visible satellites, satellite ID number, etc.

Galileo NMEA statement is prefixed with "GA", as follows:

● Gagsv: visible GNSS satellites, such as the number of visible satellites, satellite ID number, etc.

2. GNSS AT command

2.1. AT command description

2.1.1. Definition

● <CR> Return character

● <LF> Line break

● <…> Parameter name. The actual command line does not contain angle brackets.

● […] Optional parameter or optional part of TA information response. The actual command line does not contain square brackets. Unless otherwise specified,

When an optional parameter in the configuration command is omitted, its previously set value or its default value will be used by default.

underline Default settings for parameters.

2.1.2. AT command statement

AT command type	Sentence	Describe
Test command	AT+<cmd>=?	Tests whether there is a corresponding setting command and returns its parameters. Information about the type, value or range of a number.
Query command	AT+<cmd>?	Query the current parameter value of the corresponding setting command.
Setting command	AT+<cmd>=<p1>[,<p2>[,<p3>[...]]]	Set user-definable parameter values.
executive order	AT+<cmd>	Returns specific parameter information or performs specific operations.

2.2. AT example declaration

The examples in this paper are only for the convenience of users to understand the use of AT commands, and do not constitute Meg's suggestions or opinions on terminal process design.

Nor does it mean that the module should be set to the state in the corresponding example. Some AT commands have multiple instances, and there is no inheritance or continuity between these instances.

2.3. Detailed explanation of at command

2.3.1. AT+MGPSCFG configuring GNSS

This command is used to query and configure different settings of GNSS, including the output port of NMEA statement and the output type of NMEA statement.

AT+MGPSCFG configuration GNSS	
Test command **AT+MGPSCFG=?**	respond **+MGPSCFG: "outport", (list of supported < out_port >)** **+MGPSCFG: "nmeasrc ",(list of supported < NMEA_src >)** **+MGPSCFG:"gnsnmeatype",(list of supported < GNSS_NMEA_typ e >)** **+MGPSCFG: "gnssconfig ",(list of supported < GNSS_config >)** **+MGPSCFG: "autogps ",(list of supported < autoGPS >)** **OK**
Maximum response time	**300 milliseconds**
Characteristic description	**/**

2.3.1.1. AT+MGPSCFG = "outport" configures the output port of NMEA statement

This command is used to query and configure the NMEA statement output port.

AT+MGPSCFG = "outport" to configure the output port of NMEA statement.	
Setting command **AT+MGPSCFG="outport"[,<out_port>]**	respond If optional parameters are omitted, the current configuration will be queried: **+MGPSCFG: "outport",<out_port>** **OK** If optional parameters are specified, the NMEA statement output port is configured: **OK** or **ERROR** If the error is related to ME function: **+CME ERROR: <errcode>**

Maximum response time	**300 milliseconds**
Characteristic description	**The order takes effect immediately; Automatic saving of parameter configuration**

parameter

<out_port>	String type. Configure the NMEA statement output port. "none" closes the NMEA statement output. "uart1" is output through UART1 port. "uart2" is output through UART2 port. "usbat" is output through USB AT port. "usbmodem" is output through USB MODEM port. "usbnmea" is output through USB NMEA port.
<errcode>	Operation error code. For details, please refer to Chapter 4.

2.3.1.2. AT+MGPSCFG = "nmeasrc" enables/disables obtaining nmea statements through AT+MGPSNMEA

This command is used to enable/disable the NMEA statement obtained through AT+MGPSNMEA.

AT+MGPSCFG = "nmeasrc" enables/disables obtaining nmea statements through AT+MGPSNMEA.	
Setting command **AT+MGPSCFG="nmeasrc"[,<NMEA_src>]**	respond If optional parameters are omitted, the current configuration will be queried: **+MGPSCFG: "nmeasrc",<NMEA_src>** **OK** If optional parameters are specified, configure whether to enable acquisition through AT+MGPSNMEA. NMEA statement: **OK** or **ERROR** If the error is related to ME function **+CME ERROR: <errcode>**
Maximum response time	**300 milliseconds**
Characteristic description	**The order takes effect immediately; Automatic saving of parameter configuration**

parameter

<NMEA_src>	Integer If enabled, the NMEA statement can be obtained through AT+MGPSNMEA. When enabled, execute. AT+MGPSNMEA, NMEA statement will be output through at port in the form of command return value. 0 disabled 1 enable
<errcode>	Operation error code. For details, please refer to Chapter 4.

2.3.1.3. AT+MGPSCFG = "gnssnmeatype" Configure the output type of nmea statement

This command is used to configure the output type of multi-system mixed positioning NMEA statement.

AT+MGPSCFG = "gnssnmeatype" Configure the output type of multi-system mixed positioning nmea statement.	
Setting command **AT+MGPSCFG="gnssnmeatype"[, <GNSS_NMEA_type>]**	respond If optional parameters are omitted, the current configuration will be queried: **+MGPSCFG: "gnssnmeatype",<GNSS_NMEA_type>** **OK** If optional parameters are specified, the output type of multi-system mixed positioning NMEA statement is configured: **OK** or **ERROR** If the error is related to ME function: **+CME ERROR: <errcode>**
Maximum response time	**300 milliseconds**
Characteristic description	**The order takes effect immediately; Automatic saving of parameter configuration**

parameter

<GNSS_NMEA_type>	Integer Output setting of multi-system mixed positioning NMEA statement type in XOR operation format. 0 disabled 1 RMC 2 GGA 4 GLL 8 GSA 16 GSV 32 VTG 63 output all six types of statements
<errcode>	Operation error code. For details, please refer to Chapter 4.

2.3.1.4. AT+MGPSCFG = "gnssconfig" configures the supported GNSS satellite navigation system

This command is used to configure the GNSS satellite navigation system supported by the module.

AT+MGPSCFG="gnssconfig "Configure the supported GNSS satellite navigation system.	
Setting command **AT+MGPSCFG="gnssconfig"[,<GNSS_config>]**	respond If optional parameters are omitted, the current configuration will be queried: **+MGPSCFG: "gnssconfig",<GNSS_config>** **OK** If optional parameters are specified, the supported GNSS satellite navigation system is configured: **OK** or **ERROR** If the error is related to ME function: **+CME ERROR: <errcode>**
Maximum response time	**300 milliseconds**
Characteristic description	**The order takes effect immediately; Automatic saving of parameter configuration**

parameter

<GNSS_config>	Integer Supported GNSS satellite navigation system. 0 single GPS 1 GPS+GLONASS+Galileo hybrid positioning 2 GPS+GLONASS hybrid positioning 3 GPS+BDS hybrid positioning 4GPS+BDS+Galileo hybrid positioning 5 single BDS 6 single Galileo 7 GPS+BDS+GLONASS+Glalileo
<errcode>	Operation error code. For details, please refer to Chapter 4.

2.3.1.5. AT+MGPSCFG = "autogps" Enable/disable GNSS self-startup

This command is used to configure whether to automatically start GNSS when the module is started.

AT+MGPSCFG="autogps "enables/disables GNSS self-startup.	
Setting command **AT+MGPSCFG="autogps"[,<autoGPS>]**	respond If optional parameters are omitted, the current configuration will be queried: **+MGPSCFG: "autogps",<autoGPS>** **OK** If optional parameters are specified, configure whether to enable GNSS self-startup: **OK** or **ERROR** If the error is related to ME function: **+CME ERROR: <errcode>**
Maximum response time	**300 milliseconds**
Characteristic description	**The order takes effect immediately; Automatic saving of parameter configuration**

parameter

<autoGPS>	Integer Enable/disable GNSS self-startup. 0 disabled 1 enable
<errcode>	Operation error code. For details, please refer to Chapter 4.

2.3.2. AT+MGPSDEL deletes auxiliary data

This command is used to delete auxiliary data for GNSS cold start, warm start and warm start operations, and can only be executed when GNSS is turned on.

AT+MGPSDEL deleting auxiliary data	
Test command **AT+MGPSDEL=?**	respond **+MGPSDEL: (supported < delete_type > range)** **OK**
Setting command **AT+MGPSDEL=<delete_type>**	respond **OK** or **ERROR** If the error is related to ME function: **+CME ERROR: <errcode>**
Maximum response time	**300 milliseconds**
Characteristic description	**/**

parameter

<delete_type>	Integer Type of GNSS auxiliary data to be deleted. 0 Delete all auxiliary data. After turning on GNSS, forced cold start. 1 Do not delete data. After GNSS is turned on, hot start will be carried out when conditions permit. 2 Delete some related data. After the GNSS is turned on, warm start is performed when conditions permit.
<errcode>	Operation error code. For details, please refer to Chapter 4.

remarks

1. < delete_type>=0 will delete the auxiliary data in the GPS engine, including the downloaded AGPS ephemeris data and the EPH data in the GPS chip.

2. < delete_type>=1 will not delete the auxiliary data in the GPS engine.

2.3.3. AT+MGPS turn on GNSS

This command is used to turn on GNSS or wake up GNSS functions. When < fix_count > is 0, the GNSS engine will continue to locate, which can be accessed through.

AT+MGPSEND terminates the GNSS session; When < fix_count > is not 0 and the actual positioning times reach the specified value, the GNSS engine will

Automatic stop; If the actual positioning times do not reach the specified value, the GNSS session can also be terminated by AT+MGPSEND.

AT+MGPS turn on GNSS.	
Test command **AT+MGPS=?**	respond +MGPS: (list of supported < GNSS_mode >), (supported < fix_maxtime > range), (supported < fix_count > range), (supported < fix_rate > range) OK
Query command Query the current GNSS session status **AT+MGPS?**	respond **+MGPS: <GNSS_state>** OK
Setting command **AT+MGPS=<GNSS_mode>[,<fix_max time>[,<fix_count>[,<fix_rate>]]]**	respond **OK** or **ERROR** If the error is related to ME function: **+CME ERROR: <errcode>**
Maximum response time	**300 milliseconds**
Characteristic description	**/**

parameter

<GNSS_state>	Integer GNSS status. 0 GNSS off 1 GNSS on.
<GNSS_mode>	Integer GNSS working mode. 1 Independent mode
<fix_maxtime>	Integer The longest positioning time, including the reaction time during GNSS pseudorange measurement, the upper time limit of GPS satellite search, Time to demodulate ephemeris data and time to calculate position. Range: 1 ~ 255; Default value: 30; Unit: seconds.
<fix_count>	Integer Number of positioning times. Range: 0 ~ 1000; Default value: 0. 0 means continuous positioning; Other values indicate the actual positioning times.
<fix_rate>	Integer The time interval of positioning. Range: 1 ~ 65535; Default value: 1; Unit: seconds.
<errcode>	Operation error code. For details, please refer to Chapter 4.

2.3.4. AT+MGPSEND turn off GNSS

This command is used to turn off the GNSS function. Turn on GNSS through AT+MGPS=1 and < fix_count > is 0, and the GNSS engine will continue.

Positioning, the GNSS session can be forcibly terminated by this command, at which time the GNSS engine loses power and stops positioning. If the AP Flash function is enabled at this time,

If it can take effect, AT+MGPS=1 will be executed within 2 hours to turn on GNSS and wake up GNSS engine, and GNSS engine will perform warm start by default.

AT+MGPSEND turn off GNSS.	
Test command **AT+MGPSEND=?**	respond **OK** or **ERROR**
Query command **AT+MGPSEND?**	respond **OK** or **ERROR**
executive order Terminate GNSS session **AT+MGPSEND**	respond **OK** or **ERROR** If the error is related to ME function: **+CME ERROR: <errcode>**
Maximum response time	**300 milliseconds**
Characteristic description	**/**

parameter

<errcode>	Operation error code. For details, please refer to Chapter 4.

2.3.5. AT+MGPSLOC to obtain positioning information

This command is used to obtain positioning information. Before executing this command, GNSS must be turned on through AT+MGPS. If the positioning fails, it will be based on

Returns +CME ERROR: <errcode > corresponding to the situation.

AT+MGPSLOC to obtain positioning information

Test command **AT+MGPSLOC=?**	respond **+MGPSLOC:** **<UTC>,<latitude>,<longitude>,<HDOP>,<altitude>,<fix>,<COG>,<spkm>,<spkn>,<date>,<nsat>** **OK**
Setting command **AT+MGPSLOC=<mode>**	respond **+MGPSLOC:** **<UTC>,<latitude>,<longitude>,<HDOP>,<altitude>,<fix>,<COG>,<spkm>,<spkn>,<date>,<nsat>** If the error is related to ME function: **+CME ERROR: <errcode>**
Maximum response time	**300 milliseconds**
Characteristic description	**/**

parameter

<mode>	Integer Latitude and longitude display format. 0 <latitude>,<longitude > format: ddmm.mmmmN/S,dddmm.mmmmE/W 1 <latitude>,<longitude > format: ddmm.mmmmmm, n/s, dddmm.mmmmmm, e/w. 2 <latitude>,<longitude > format: (-) dd.dddddd, (-) ddd.dddddd.
<UTC>	String type. UTC time. Format: hhmmss.sss (quoted from GPGGA statement)
<latitude>	String type. Latitude. If < mode > is 0: Format: ddmm.mmmmN/S Dd degrees. Range: 00~89 Mm.mmmm points. Range: 00.0000~59.9999 N/S north latitude/south latitude If < mode > is 1: Format: ddmm.mmmmmm,N/S Dd degrees. Range: 00~89 Mm.mmmmmm points. Range: 00.000000 ~ 59.9999 N/S north latitude/south latitude If < mode > is 2: Format: (-)dd.dddddd Ddd. dddddd degrees. Range:-89.99999 ~ 89.999 -South latitude
	String type. Longitude. If < mode > is 0:

<longitude>	Format: dddmm.mmmmE/W Ddd degree. Range: 000~179 Mm.mmmm points. Range: 00.0000~59.9999 E/W east/west longitude If < mode > is 1: Format: dddmm.mmmmmm,E/W (quoted from GPGGA statement) Ddd degree. Range: 000~179 Mm.mmmmmm points. Range: 00.000000 ~ 59.9999 E/W east/west longitude If < mode > is 2: Format: (-)ddd.dddddd Ddd.dddddd degree. Range:-179.999 ~ 179.999 -West longitude
<HDOP>	Horizontal precision factor. Range: 0.5~99.9.
<altitude>	The altitude of the antenna. Accurate to one decimal place. Unit: meter.
<fix>	Integer GNSS positioning mode. 2 2D positioning 3 3D positioning
<COG>	String type. Heading to the ground based on true north reference. Format: ddd.mm (quoted from GPVTG statement). Ddd degree. Range: 000~359 Mm points. Range: 00~59
<spkm>	Ground speed. Accurate to one decimal place. Unit: km/h (quoted from GPVTG statement).
<spkn>	Ground speed. Accurate to one decimal place. Unit: section (quoted from GPVTG statement).
<date>	UTC date. Format: ddmmyy (quoted from GPRMC statement). Dd day Mm month Yy year
<nsat>	Number of satellites. Fix two digits, and if the leading digits are insufficient, make up 0.
<errcode>	Operation error code. For details, please refer to Chapter 4.

2.3.6. AT+MGPSNMEA gets the specified NMEA statement

This command is used to get the specified NMEA statement. Before using this command, you must open GNSS through AT+MGPS, set < NMEA_src > to 1, and then obtain the specified NMEA statement through AT+MGPSNMEA.

Users can disable sentence output through at+mgpscfg = "gnsnmeatype", 0, that is, they will no longer output updated sentences, and save NMEA sentences obtained before disabling sentence output after GNSS activation. If the saved NMEA statement contains the statement type specified by AT+MGPSNMEA, the specified NMEA statement can still be obtained through AT+MGPSNMEA.

AT+MGPSNMEA gets the specified NMEA statement.	
Test command **AT+MGPSNMEA=?**	respond **+MGPSNMEA: (list of supported < NMEA_type >)** **OK**
Setting command Query RMC statement **AT+MGPSNMEA="RMC"**	respond **[+MGPSNMEA: <RMC_sentence>]** **OK** If the error is related to ME function: **+CME ERROR: <errcode>**
Setting command Query GGA statement **AT+MGPSNMEA="GGA"**	respond **[+MGPSNMEA: <GGA_sentence>]** **OK** If the error is related to ME function: **+CME ERROR: <errcode>**
Setting command Query GLL statement **AT+MGPSNMEA="GLL"**	respond **[+MGPSNMEA: <GLL_sentence>]** **OK** If the error is related to ME function: **+CME ERROR: <errcode>**
Setting command Query GSA statement **AT+MGPSNMEA="GSA"**	respond **[+MGPSNMEA: <GSA_sentence>]** **OK** If the error is related to ME function: **+CME ERROR: <errcode>**
Setting command Query GSV statement **AT+MGPSNMEA="GSV"**	respond **[+MGPSNMEA: <GSV_sentence>]** **OK** If the error is related to ME function: **+CME ERROR: <errcode>**
Setting command Query VTG statement **AT+MGPSNMEA="VTG"**	respond **[+MGPSNMEA: <VTG_sentence>]** **OK**

	If the error is related to ME function: **+CME ERROR: <errcode>**
Maximum response time	300 milliseconds
Characteristic description	/

parameter

<NMEA_type>	String type. NMEA statement type. "RMC" RMC statement "GGA" GGA statement "GLL" GLL statement "GSA" GSA statement "GSV" GSV statement "VTG" VTG statement
<RMC_sentence>	String type. RMC statement
<GGA_sentence>	String type. GGA statement
<GLL_sentence>	String type. GLL statement.
<GSA_sentence>	String type. GSA statement.
<GSV_sentence>	String type. GSV statement.
<VTG_sentence>	String type. VTG statement.
<errcode>	Operation error code. For details, please refer to Chapter 4.

2.3.7. AT+MAGPS enables/disables AGPS

This command is used to enable/disable the AGPS function of GNSS.

AT+MGPSLOC to obtain positioning information	
Test command **AT+MAGPS=?**	**respond** **+MAGPS: (list of supported < AGPS_mode >)** **OK**
Query command **Query whether the current AGPS is turned on.** **AT+MAGPS?**	**respond** **+MAGPS: <AGPS_mode>** **OK**
Setting command **Set to enable or disable the**	**respond** **OK**

AGPS function. AT+MAGPS=<AGPS_mode>	**If the error is related to ME function: +CME ERROR: <errcode>**
Maximum response time	**300 milliseconds**
Characteristic description	**The order takes effect immediately; Parameter configuration is automatically saved.**

parameter

<AGPS_mode>	Integer Enable/disable the AGPS function of GNSS. 0 disabled 1 enable
<errcode>	Operation error code. For details, please refer to Chapter 4.

2.3.8. AT+MAGPSCFG configures AGPS related parameters

This command is used to configure the parameters of AGPS.

AT+MAGPSCFG configures AGPS related parameters.	
Test command **AT+MAGPSCFG=?**	respond **+MAGPSCFG: (supported < profile > range), < URL>,<vendorID >, < modelID>,<password>** **OK**
Query command **AT+MAGPSCFG?**	respond **+MAGPSCFG: <profile>,<URL>,<vendorID>,<modelID>,<password>** **OK**
Setting command **AT+MAGPSCFG=<profile>[,<URL>[,<vendorID>[,<modelID>[,<password>]]]]**	respond **OK** If the error is related to ME function: **+CME ERROR: <errcode>**
Maximum response time	300 milliseconds
Characteristic description	The order takes effect immediately; Parameter configuration is automatically saved.

parameter

<profile>	Integer PDP index. Range: 1 ~ 7; Default value: 1.
<URL>	String type. AGPS server address. Default value: "http://meig-api.rx-networks.cn".
<vendorID>	String type. User name. Default value: "123456"; Maximum length: 32 bytes.

<modelID>	String type. Customer identification. Default value: "123456".
<password>	String type. Password. Default value: "zzrnn2pynzvxwnhjvek1qq = ="; Maximum length: 64 bytes.
<errcode>	Operation error code. For details, please refer to Chapter 4.

give an example

```
AT+MAGPSCFG=1,"http://meig-api.rx-networks.cn","123456","1234546",
"ZzRNN2pYNzVXWnhJVEk1QQ=="
OK
```

remarks

After the AGPS function is enabled, the PDP context specified by < profile > may be deactivated. Therefore, the AGPS function cannot be combined with other applications.
At the same time, share the same PDP context, otherwise the network application may be disconnected abnormally and need to redial.

2.3.9. AT+MGPSINFO view GNSS version information

This command is used to view the version information of GNSS.

AT+MGPSINFO viewing GNSS version information	
Test command **AT+MGPSINFO=?**	respond **OK**
Query command **AT+MGPSINFO?**	respond **OK**
executive order **AT+MGPSINFO**	respond **+MGPSINFO: <GNSS_info>** **OK** If the error is related to ME function: **+CME ERROR: <errcode>**
Maximum response time	300 milliseconds
Characteristic description	/

parameter

<GNSS_info>	String type. Version information of GNSS.
<errcode>	Operation error code. For details, please refer to Chapter 4.

give an example

```
AT+MGPSINFO // Query GNSS version information
+MGPSINFO: CC1161W,G1B1,N/A,N1000R3.52.1.3269Build15172,N/A,N/A

OK
```

3. Examples

3.1. Turn GNSS on and off

This example uses default parameters to turn on GNSS. After GNSS is turned on, NMEA statements are output from "usbnmea" port by default. pass

AT+MGPSEND can turn off GNSS.

```
AT+MGPS=1 // Turn on GNSS.
OK
//After GNSS is turned on, the NMEA statement is output from the "usbnmea" port by default (the last port of USB).
At+mgpssloc = 0//Get positioning information.
+MGPSLOC:022047,3107.8738N,12121.3529E,2.740000,0.000000,3,48.500000,0.501892,0.501892,27072023,00

OK
AT+MGPSEND// turn off GNSS.
OK
```

3.2. Application of parameter < NMEA_src >

After turning on GNSS and setting < NMEA_src > to 1, you can get NMEA sentences directly through AT+MGPSNMEA.

```
AT+MGPSCFG="NMEAsrc",1// Set < NMEA_src > to 1 to enable obtaining nmea statements through AT+MGPSNMEA.
OK
AT+MGPSNMEA="GGA" // Get GGA statement.

OK
AT+MGPSCFG="NMEAsrc",0// Set < NMEA_src > to 0 to disable obtaining nmea statements through AT+MGPSNMEA.
OK
AT+MGPSNMEA="GGA" // Get GGA statement.
+CME ERROR: 507 // Getting NMEA statement through AT+MGPSNMEA is disabled, so GGA statement cannot be obtained.
```

3.3. AGPS function application

AT+MAGPSCFG is used to configure the relevant parameters of AGPS; AT+MAGPS=1 enables AGPS function. On the premise of normal networking and correct configuration of relevant parameters of AGPS, ephemeris data can be automatically obtained after each module is turned on and GNSS is turned on, thus realizing rapid positioning.

```
AT+MAGPSCFG=1,"http://meig-api.rx-networks.cn/rxn-api/locationApi/rtcm","arEcK3siSm","123454612345","cTBFOFBxeGl2eUg2empFWA==" //Configure the relevant parameters of AGPS.

OK
```

```
AT+MAGPS=1                                          //Enable AGPS function

OK

AT+MGPS=1                                           //Turn on GNSS, automatically download ephemeris data and inject it into GPS. The valid time of downloaded ephemeris data is

OK                                                  //2 hours
```

4. Error code

< errcode > indicates an error related to GNSS operation. See the table below for detailed < errcode > parameter values.

Table 1-Error codes

<errcode>	Error code	Chinese explanation
501	Invalid paramerer(s)	Invalid parameter
502	Operation not supported	Operation not supported.
503	GNSS subsystem busy	GNSS subsystem busy
504	Session is ongoing	The session is still in progress.
505	Session not active	Session is not active.
506	Operation timeout	Operation timeout
507	Function not enabled	Function not enabled.
508	Time information error	Time information error
512	Validity time is out of range	After the expiration date
513	Internal resource error	Internal resource error
514	GNSS locked	GNSS lock
515	Reserved	reserve
516	Not fixed now	Currently not located.
517	CMUX port is not opened	CMUX port is not open.
549	Unknown error	Unknown error