MC60 GNSS

AT Commands Manual

GSM/GPRS/GNSS Module Series

Rev. MC60_GNSS_AT_Commands_Manual_V1.0

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About the Document

History

Revision	Date	Author	Description
1.0	2016-06-24	Hyman DING	Initial

Contents

Table Index

1 Introduction

GNSS, a featured function embedded in Quectel MC60 module, can help customers get the current accurate coordinates, high precision time, etc.

MC60 integrates both GNSS and GSM engines which can work as a whole (all-in-one solution) unit or work independently (stand-alone solution) according to customer demands. In all-in-one solution, the internal GNSS module can be regarded as a peripheral of the whole unit, and is completely controlled by the GSM module, including power supply, UART communication, etc. In stand-alone solution, the internal GNSS module and the GSM module work independently, and the GNSS has to be controlled separately.

2 AT Commands for MC60 GNSS

2.1. Overview of AT Commands for MC60 GNSS

The commands below are effective only in all-in-one solution.

Table 1: Overview of AT Commands for MC60 GNSS

Command	Description
AT+QGNSSC	GNSS module power control
AT+QGNSSRD	Read GNSS navigation information
AT+QGNSSCMD	Send commands to GNSS module

2.1.1. AT+QGNSSC GNSS Module Power Control

The command is used to control the power supply of GNSS module.

AT+QGNSSC GNSS Module Power Control	
Test Command **AT+QGNSSC=?**	Response **+QGNSSC: (list of supported <mode>s)** **OK**
Read Command **AT+QGNSSC?**	Response **+QGNSSC: <mode>** OK
Write Command **AT+QGNSSC=<mode>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**

Parameter

<mode>	0	Power off GNSS module
	1	Power on GNSS module

NOTE

In stand-alone solution, the power supply of GNSS is controlled by an external circuit rather than the PIN GPS_VCC_EN. In such case, command **AT+QGNSSC** cannot be used and thus can be ignored.

2.1.2. AT+QGNSSRD Read GNSS Navigation Information

The command is used to get the GNSS navigation information.

AT+QGNSSRD Read GNSS Navigation Information	
Test Command **AT+QGNSSRD=?**	Response **+QGNSSRD: (list of supported <item>s)** **OK**
Read Command **AT+QGNSSRD?**	Response **+QGNSSRD: (information of all supported <item>s)** **OK**
Write Command **AT+QGNSSRD=<item>**	Response **+QGNSSRD: (information of <item>)** **OK** If error is related to ME functionality: **+CME ERROR: <err>**

Parameter

<item>	"NMEA/GGA": Get GGA sentence
	"NMEA/GLL": Get GLL sentence
	"NMEA/GSA": Get GSA sentence
	"NMEA/GSV": Get GSV sentence
	"NMEA/RMC": Get RMC sentence
	"NMEA/VTG": Get VTG sentence

2.1.3. AT+QGNSSCMD Send Commands to GNSS Module

The command is used to send commands to GNSS module, which allows customers to optionally use some functions to meet application demands.

AT+QGNSSCMD Send Commands to GNSS Module	
Test Command **AT+QGNSSCMD=?**	Response **+QGNSSCMD: (0,1),"cmdString"** **OK**
Write Command **AT+QGNSSCMD=<cmdType>,<cmdString>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**

Parameter

<cmdType>	0	NMEA style command
	1	Hex style command
<cmdString>	Command string	

NOTE

Currently only **<cmdType>**=0 is supported.

3 Examples

3.1. AT+QGNSSC

```
AT+QGNSSC?                  // Query GNSS power status
+QGNSSC: 0                  // GNSS powered off
OK
AT+QGNSSC=1                 // Power on GNSS
OK
```

3.2. AT+QGNSSRD

```
AT+QGNSSRD?                         // Inquire GNSS NMEA sentence
+QGNSSRD: $GNRMC,034035.000,A,3150.8617,N,11711.9038,E,3.02,183.45,240516,,,A*75
$GNVTG,183.45,T,,M,3.02,N,5.59,K,A*20
$GNGGA,034035.000,3150.8617,N,11711.9038,E,1,4,1.50,40.9,M,0.0,M,,*44
$GPGSA,A,3,26,21,,,,,,,,,,,1.75,1.50,0.91*0A
$GLGSA,A,3,82,70,,,,,,,,,,,1.75,1.50,0.91*1C
$GPGSV,3,1,12,16,67,308,,26,58,021,16,23,40,307,,31,40,088,*7F
$GPGSV,3,2,12,08,17,199,,09,14,320,,21,10,086,14,14,10,153,*73
$GPGSV,3,3,12,22,09,226,,193,06,165,,32,03,154,,29,01,034,*45
$GLGSV,3,1,09,81,44,073,,79,40,041,,82,38,145,15,80,36,323,*66
$GLGSV,3,2,09,70,30,290,16,69,26,225,,78,12,078,,88,09,027,*64
$GLGSV,3,3,09,71,05,334,*5B
$GNGLL,3150.8617,N,11711.9038,E,034035.000,A,A*4C

OK
AT+QGNSSRD="NMEA/RMC"               // Inquire RMC information
+QGNSSRD: $GNRMC,034036.000,A,3150.8612,N,11711.9045,E,2.74,178.00,240516,,,A*7C

OK
AT+QGNSSRD="NMEA/GSA"               // Inquire GSA information
+QGNSSRD: $GPGSA,A,3,26,21,,,,,,,,,,,1.76,1.50,0.91*09

OK
AT+QGNSSRD?                         // Inquire GNSS NMEA sentence
```

```
+QGNSSRD: $GNRMC,034039.000,A,3150.8596,N,11711.9049,E,2.13,194.12,240516,,,A*70
$GNVTG,194.12,T,,M,2.13,N,3.95,K,A*23
$GNGGA,034039.000,3150.8596,N,11711.9049,E,1,5,1.50,38.7,M,0.0,M,,*44
$GPGSA,A,3,22,26,21,,,,,,,,,,1.75,1.50,0.91*0A
$GLGSA,A,3,82,70,,,,,,,,,,,1.75,1.50,0.91*1C
$GPGSV,3,1,12,16,67,308,,26,58,021,17,23,40,307,,31,40,088,*7E
$GPGSV,3,2,12,08,17,199,,09,14,320,,21,10,086,12,14,10,153,*75
$GPGSV,3,3,12,22,09,226,16,193,06,165,,32,03,154,,29,01,034,*42
$GLGSV,3,1,09,81,44,073,,79,40,041,,82,38,145,16,80,36,323,*65
$GLGSV,3,2,09,70,30,290,16,69,26,225,,78,12,078,,88,09,027,*64
$GLGSV,3,3,09,71,05,334,*5B
$GNGLL,3150.8596,N,11711.9049,E,034039.000,A,A*4C

OK
```

3.3. AT+QGNSSCMD

```
AT+QGNSSCMD=0,"$PMTK605*31"          // Inquire GNSS version information
OK

+QGNSSCMD: $PMTK705,AXN_3.82_3333_16051101,0002,MC60-GNSS,1.0*2D
```

4 Appendix

4.1. Related Documents

Table 2: Related Documents

SN	Document Name	Remark
[1]	NMEA 0183 Version 3.01	Standard for Interfacing Marine Electronic Devices
[2]	Quectel_MC60_Hardware_Design	MC60 Hardware Design

4.2. Terms and Abbreviations

Table 3: Terms and Abbreviations

Abbreviation	Description
GGA	Global Positioning System Fixed Data
GLL	Geographic Position – Latitude/Longitude
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
GSA	GNSS DOP and Active Satellites
GSM	Global System for Mobile Communication
GSV	GNSS Satellites in View
ME	Mobile Equipment
NMEA	National Marine Electronics Association
RMC	Recommended Minimum Specific GNSS Data

VTG	Course Over Ground and Ground Speed

4.3. Summary of CME ERROR Codes Related to GNSS

Table 4: Different Coding Schemes of +CME ERROR Related to GNSS: <err>

Code of <err>	Meaning
7101	Invalid parameter
7102	Not supported
7103	Operation failed