



# PMTK command packet

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# PMTK command packet

Rev.A03

Preamble	TalkerID	PktType	DataField	*	CHK1	CHK2	CR	LF
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Maximum packet length is restricted to 255 bytes.

Field	Length	Type	Description
Preamble	1 byte	Character	"\$"
TalkerID	4 byte	Character string	"PMTK"
PktType	3 byte	Character string	From "000" to "999", an identifier used to tell the decoder how to decode the packet
DataField	Variable		A ";" must be inserted before each data field to help decoder process the DataField
*	1 byte	Character	The star symbol is used to mark the end of DataField
CHK1, CHK2	2 byte	Character string	Checksum of the data between preamble ";" and "*"
CR, LF	2 byte	Binary data	Used to identify the end of a packet

Sample Packet: \$PMTK000\*32<CR><LF>

To inform the sender whether or not the module has received the packet, an acknowledge packet PMTK\_ACK should be returned after the command is successfully given.

Pkt Type	Abbreviation / Syntax	Data Field	meaning / Example / Return
000	PMTK_TEST	None	Test Packet \$PMTK000*32<CR><LF>
001	PMTK_ACK PMTK001,Cmd,Flag	Cmd: Command / packet type the acknowledge responds Flag: 0 = Invalid command / packet 1 = Unsupported command / packet type 2 = Valid command / packet, but action failed 3 = Valid command / packet, and action succeeded	Acknowledge of PMTK command \$PMTK001,604,3*32<CR><LF>
010	PMTK_SYS_MSG PMTK001,Msg	Msg: System message. 0: Unknown 1: Startup	Output system message \$PMTK010,001*2E<CR><LF>

Also, if the GPS module was restarted by command, both "\$PMTK010,001\*2E<CR><LF>" and "\$PMTK011,MTKGPS\*08<CR><LF>" will be returned at the same time after GPS receiver has successfully completed boot-up stage.

### Note:

When the power of device (module) is removed, any modified setting will be lost and reset to factory default setting. If the device (module) has backup power supply through VBACKUP or coin battery, it will be able to keep the modified setting until the backup power is exhausted.

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**Packet Type: 101 PMTK\_CMD\_HOT\_START**

**Packet Meaning:**

Hot Restart: Use all available data in the NV Store.

**DataField:**

None

**Example:**

\$PMTK101\*32<CR><LF>

**Packet Type: 102 PMTK\_CMD\_WARM\_START**

**Packet Meaning:**

Warm Restart: Don't use Ephemeris at re-start.

**DataField:**

None

**Example:**

\$PMTK102\*31<CR><LF>

**Packet Type: 103 PMTK\_CMD\_COLD\_START**

**Packet Meaning:**

Cold Restart: Don't use Time, Position, Almanacs and Ephemeris data at re-start.

**DataField:**

None

**Example:**

\$PMTK103\*30<CR><LF>



**Packet Type: 104 PMTK\_CMD\_FULL\_COLD\_START**

**Packet Meaning:**

Full Cold Restart: It's essentially a Cold Restart, but additionally clear system/user configurations at re-start. That is, reset the receiver to the factory status.

**DataField:**

None

**Example:**

\$PMTK104\*37<CR><LF>

**Packet Type: 220 PMTK\_SET\_NMEA\_UPDATERATE**

**Packet Meaning:**

Set NMEA port update rate

**DataField:**

Position fix interval(msec). The possible interval values range between 100 and 10000 msec.

**Example:**

\$PMTK220,1000\*1F<CR><LF>

\$PMTK220, 200\*2C<CR><LF>

\$PMTK220,100\*2F<CR><LF>

**Note :**

1000(msec) = 1(sec) → 1/1 = 1Hz

200(msec) = 0.2(sec) → 1/0.2 = 5 Hz

100(msce) = 0.1(sec) → 1/0.1 = 10 Hz

- 1F is checksum

- CR, LF : Two bytes binary data

- The two bytes are used to identify the end of a packet



## Packet Type : 250 PMTK\_SET\_DPort

### Packet meaning

Set data port's (RTCM PORT or 2<sup>nd</sup> UART PORT) baud rate and input/output type

### DataField:

PMTK250, InType, OutType, Baudrate

InType : Data port input data type

'0' = DPORT\_IN\_NONE (No data input)

'1' = DPORT\_IN\_RTCM (RTCM input)

'3' = DPORT\_IN\_NMEA (MTK NMEA)

OutType : Data port output data type

'0' = DPORT\_OUT\_NONE (No data output)

'3' = DPORT\_OUT\_NMEA (MTK NMEA)

Baudrate : 4800,9600,14400,19200,38400,57600,115200

### Example :

```
$PMTK250,1,0,9600*17<CR><LF>
```

## Packet Type : 251 PMTK\_SET\_NMEA\_BAUDRATE

### Packet Meaning :

Set NMEA port baudrate

### DataField :

PMTK251, Baudrate

Baudrate setting : 4800,9600,14400,19200,38400,57600,115200

### Example :

```
$PMTK251,38400*27<CR><LF>
```

### Note :

27 is checksum

CR, LF : Two bytes binary data

The two bytes are used to identify the end of a packet



## Packet Type: 300 PMTK\_API\_SET\_FIX\_CTL

**Packet Meaning:**

API\_Set\_Fix\_Ctl

This parameter controls the rate of position fixing activity.

**DataField:**

PMTK300,FixInterval,0,0,0,0

FixInterval: Position fix interval [msec]. Must be larger than 200.

**Example :**

\$PMTK300,1000,0,0,0,0\*1C<CR><LF>

## Packet Type: 301 PMTK\_API\_SET\_DGPS\_MODE

**Packet Meaning:**

API\_Set\_Dgps\_Mode

DGPS correction data source mode.

**DataField:**

PMTK301,Mode

Mode: DGPS data source mode.

'0': No DGPS source

'1': RTCM

'2': WAAS

**Example:**

\$PMTK301,1\*2D<CR><LF>

**Note:**

If you wish to use set DGPS mode to RTCM, please use PMTK250 first to set RTCM baud rate before using this command



## Packet Type: 313 PMTK\_API\_SET\_SBAS\_ENABLED

### Packet Meaning:

API\_Set\_Sbas\_Enabled

Enable to search a SBAS satellite or not.

### DataField:

Enabled: Enable or disable

'0' = Disable, '1' = Enable

### Example:

```
$PMTK313,1*2E<CR><LF>
```

## Packet Type : 314 PMTK\_API\_SET\_NMEA\_OUTPUT

### Packet Meaning :

API\_Set\_NMEA\_Out

Set NMEA sentence output frequencies

### DataField :

There are totally 19 data fields that present output frequencies for the 19 supported NMEA sentences individually.

### Supported NMEA Sentences

- 0 NMEA\_SEN\_GLL, // GPGLL interval - Geographic Position - Latitude longitude
- 1 NMEA\_SEN\_RMC, // GPRMC interval - Recommended Minimum Specific GNSS Sentence
- 2 NMEA\_SEN\_VTG, // GPVTG interval - Course Over Ground and Ground Speed
- 3 NMEA\_SEN\_GGA, // GPGGA interval - GPS Fix Data
- 4 NMEA\_SEN\_GSA, // GPGSA interval - GNSS DOPS and Active Satellites
- 5 NMEA\_SEN\_GSV, // GPGSV interval - GNSS Satellites in View
- 6 NMEA\_SEN\_GRS, // GPGRS interval - GNSS Range Residuals
- 7 NMEA\_SEN\_GST, // GPGST interval - GNSS Pseudorange Errors Statistics
- 13 NMEA\_SEN\_MALM, // PMTKALM interval - GPS almanac information
- 14 NMEA\_SEN\_MEPH, // PMTKEPH interval - GPS ephemeris information
- 15 NMEA\_SEN\_MDGP, // PMTKDGP interval - GPS differential correction information
- 16 NMEA\_SEN\_MDBG, // PMTKDBG interval - MTK debug information
- 17 NMEA\_SEN\_ZDA, // GPZDA interval - Time & Date
- 18 NMEA\_SEN\_MCHN, // PMTKCHN interval - GPS channel status



## Supported Frequency Setting

- 0 - Disabled or not supported sentence
- 1 - Output once every one position fix
- 2 - Output once every two position fixes
- 3 - Output once every three position fixes
- 4 - Output once every four position fixes
- 5 - Output once every five position fixes

### Example:

```
$PMTK314,1,1,1,1,1,5,1,1,1,1,1,1,0,1,1,1,1,1*2C<CR><LF>
```

This command set GLL output frequency to be outputting once every 1 position fix, and RMC to be outputting once every 1 position fix, and so on. You can also restore the system default setting via issue : \$PMTK314,-1\*04<CR><LF>

## Packet Type: 319 PMTK\_API\_SET\_SBAS\_Mode

### Packet Meaning:

API\_Set\_Sbas Mode\_Selection  
Choose SBAS satellite test mode

### DataField:

Mode=0: testing mode  
Mode=1: Integrity mode

### Example:

```
$PMTK319,0*25<CR><LF>  
$PMTK319,1*24<CR><LF>
```

## Packet Type: 413 PMTK\_API\_Q\_SBAS\_ENABLED

### Packet Meaning:

API\_Query\_Sbas\_Enabled

### DataField:

None

### Return:

PMTK\_DT\_SBAS\_ENABLED

### Example:

```
$PMTK413*34<CR><LF>
```

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## Packet Type: 513 PMTK\_DT\_SBAS\_ENABLED

### Packet Meaning:

Enable to search a SBAS satellite or not.

### DataField:

Enabled: Enable or disable

'0' = Disable, '1' = Enable

### Example:

```
$PMTK513,1*28<CR><LF>
```

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