



GlobalTop Tech Inc.
宇誠科技股份有限公司

Document	Global Top Binary Sentence Specification				
Author	Hector Su	Date	2011/10/27	Ver.	1.3



Global Top Binary Sentence Specification

V 1.3

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Version History

History			
Date	Rev.	Author	Description
2010/05/26	1.0	Hector Su	First Release
2010/07/06	1.1	Hector Su	Second Release
2010/12/01	1.2	Hector Su	Third Release
2011/10/27	1.3	Hector Su	Fourth Release

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1. Function Overview

1.1

It supports to output customized sentence. It provides two modes:

1. Binary Sentence
2. Standard NMEA Sentence (default)

The format is shown in **Table 1**.

1.2

It supports customized command to switch mode between standard NMEA and Binary, the format is shown in the **Table 2**.

1.3

It adds or removes some item for **Binary Sentence**, to meet customer demand.

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Table 1 Customized Data Format

Name	Example	Units	Description
Preamble header	0x04 0x24	2 bytes	Preamble header
UTC Time	0x03 0xDF 0x12 0xD8	4 bytes MSB to LSB	UTC Time(hhmmss.sss) Example:064951.000*1000=64951000→ 0x03DF13D8
Date	0x00 0x01 0x3C 0x72	4 bytes MSB to LSB	Date(ddmmyy) Example:20101008 →81010 → 0x00013C72
Latitude	0x01 0x60 0x74 0xCC	4 bytes MSB to LSB	Latitude (in decimal degrees) Example:23.098572*(10^6)=23098572→ 0x016074CC
N/S Indicator	0x01	1 byte	0x01→North or 0x02 →South
Longitude	0x07 0x2B 0x64 0xDF	4 bytes MSB to LSB	Longitude (in decimal degrees) Example:120.284383*(10^6)=120284383 →0x072B64DF
E/W Indicator	0x01	1 byte	0x01→East or 0x02 →West
Fix Quality	0x03	1 byte	0x01 →GPS No Fix 0x02 →2D GPS Fix 0x03 →3D GPS Fix

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Fix Mode	0x01	1 byte	0x00 → GPS No Fix 0x01 → GPS Fix without DGPS mode 0x02 → GPS Fix with DGPS mode
Altitude	0x00 0x00 0x0F 0x9B	4 bytes MSB to LSB	Altitude of current position (meter) Example: 39.95 → 39.95*100=3995 → 0x00000F8B
Course over ground	0x00 0x00 0x16 0xB8	4 bytes MSB to LSB	Course over ground (in degree) Example: 58.16 → 58.16*100=5816 → 0x000016B8
Speed over ground	0x00 0x00 0x00 0x3E	4 bytes MSB to LSB	Ground Speed (km/hr) Example: 0.62 → 0.62*100=62 → 0x0000003E
Satellites in view	0x0A	1 byte	Number of satellite is in viewed
Satellites in track	0x09	1 byte	Number of satellite is in used
HDOP	0x00 0x69	2 bytes MSB to LSB	Horizontal Dilution of Precision Example: 1.05 → 1.05*100=105 → 0x0069
EPE	0x01 0x0D	2 bytes MSB to LSB	Estimated position error (meter) Example: 2.69 → 2.69*100=269 → 0x010D
Asterisk	0x2A	1 byte	
Checksum	0x47	1 byte	Checksum. Refer to Note 2.2
End Word	0x0D 0x0A	2 bytes	End of message termination

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Table 2 Customized Command Format

Name	Example	Units	Description
Message ID	\$PGCMD		Customized header of command
Number of command	21		This number represents which command is used
Selection of mode	1		Selection of mode 1. Binary sentence mode 3. Standard NMEA mode
Checksum	*6F		Refer to Note 2.1
<CR> <LF>			End of message termination

Caution 1: When switch back to Standard NMEA mode, the period of sentence will be GGA(1), GSA(1), GSV(5), RMC(1), VTG(1), GLL(0), ZDA(0).

Caution 2 : The command has the different parameter and acknowledge. The format of acknowledge is shown in Table 3.

Example:

- \$PGCMD,21,1*6F<CR><LF>
- \$PGCMD,21,3*6D<CR><LF>

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Table 3 Customized Acknowledge Format

Name	Example	Units	Description
Message ID	\$PGACK		Customized header of command
Number of command	21		This number represents which acknowledge is used
Status	1		It supports 3 status: 1: Binary Sentence mode be set 3: Standard NMEA mode be set -1: Mode switch fail
Checksum	*6C		Refer to Note 2.1
<CR> <LF>			End of message termination

Example:

- \$PGACK,21,1*6C<CR><LF>
- \$PGACK,21,3*6E<CR><LF>
- \$PGACK,21,-1*41<CR><LF>

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2. Note

2.1

The checksum will be calculated by **Xor** all characters between \$ and *.

2.2

The checksum will be calculated by **Xor** all bytes between **Preamble header** and **Asterisk**.

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