DIYDrones Custom Binary Sentence SpecificationV 1.1

Approve: Check: Design:

Version History

History									
Date	Rev.	Author		Description					
2010/05/17	1.0	Hector Su	First Release						
2010/05/18	1.1	Hector Su	Second Release						
2010/07/08	1.2	Hector Su	Third Release						
2010/07/27	1.3	Hector Su	Fourth Release						

1. Purpose

Output custom binary sentence for customer •

2. Development Environment & Software

u Real View Suite3.1

u C language

3. Provide Function

3.1

To output Binary sentence. Format shown in table 1.

3.2

Support for custom command to switch output mode between standard NMEA and Binary, Format shown in the table 2.

3.3

Modification of Latitude \, Longitude \, Altitude MSL \, Ground

Speed \(\) Heading \(\) Time. To swap the byte order. The example is show in below.

Latitude(Before) 0xCC 4bytes

0x74 Low byte

0x60 to 0x01 Hi byte

Latitude(After) 0x01 4bytes

0x60 Hi byte

0x74 to

0xCC Low byte

Customize Data Format Table-1

Name Example Units Description

Preamble 0xB5,0x622bytes Header, always the same

Class 0x01,0x052bytes Message ID, always the same

and MSG

ID

Latitude 0x01 4bytes Latitude (in decimal degrees)

0x60 Hi byte The original value will be converted to Example:23.098572*(10^6)=23098572

0xCC Low

byte

Longitude0x07 4bytes Latitude (in decimal degrees)

Ox2B Hi The original value will be converted byteExample:120.284383*(10^6)=120284383

0xDF to byteExample:120.284383*(10)

Low byte

Altitude 0x00 4 bytes Altitude MSL(cm)

MSL 0x00 Hi byte The original value will be converted

0x0D to Example: $34.82(m)*(10^2)=3482$

0x9A Low (cm)

byte

Ground 0x00 4 bytes Ground Speed(cm/s)

Speed 0x00 Hi byte The original value will be converted

0x00 to Example: 0.324 (km/hr) = > 0.324*100000/3600 = 9(cm/s)

0x09 Low

byte

Heading	0x07 0x56 0xB7 0x00	-	Heading(degrees) The original value will be converted Example:123.123456=>123.123456*1000000=123123456(degrees)
Satellites	0x09	1byte	The value of satellites in viewed
Fix Type	0x03	1byte	GPS fix type Example: $0x01=>$ no fix $\cdot 0x02=>2D$ fix $\cdot 0x03=>3D$ fix
Time	0x00 0x00 0x82 0xF3	-	It shows a part of UTC Time Exapmle:2010/5/18 03:35:23:999 ==>33523(HHMMSSMS)
CK_A	0x47	1byte	Checksum_A Refer to (1)
CK_B	0xF8	1byte	Checksum_B Refer to (1)

 $\begin{aligned} \text{Example: } 0xB5, 0x62, 0x01, 0x05, 0x01, 0x60, 0x74, 0xCC, \\ 0x07, 0x2B, 0x64, 0xDF, 0x00, 0x00, 0x0D, 0x9A, 0x00, 0x00, 0x00, 0x01, 0x00, \\ 0x00, 0x00, 0x00, 0x0B, 0x03, 0x00, 0x00, 0x82, 0xF3, 0x47, 0xF8 \text{ or} \end{aligned}$

Customize Command Fo	rmat		Table 2
Name	Example	Units	Description
Message ID	\$PGCMD		Customize command header
Command Number	16		This number represents which command is used
Parameter 1:RMC	1		Period of RMC, 0~5. 0 mean to disable output
Parameter 2:VTG	1		Period of VTG, 0~5. 0 mean to disable output
Parameter 3:GSA	1		Period of GSA, 0~5. 0 mean to disable output
Parameter 4:GSV	1		Period of GSV, 0~5. 0 mean to disable output

Parameter 5:GGA

1

Checksum *6B

<CR> <LF> End of message termination

Example: \$PGCMD,16,1,1,1,1,1*6B or \$PGCMD,16,0,0,0,0,0*6A(2)

4.

Note

1. The checksum CK_A and CK_B. It be calculated from all bytes sent except for the preamble bytes(0xB5,0x62)

$$CK_A = 0$$
, $CK_B = 0$

2.Use this command for switching output mode. When input command "\$PGCMD,16,0,0,0,0,*6A", then switch to binary mode. Otherwise for NMEA mode.

end