

## P3AVR – COMMUNICATION PROTOCOL

Every message packet is ASCII formatted and the string packet starts with the character “#” (ASCII char. 35) and stops with Carriage Return (ASCII Char. 13).

All the values (Roll, Pitch, Yaw, Speed, etc.) have the Hexadecimal format, ie. a Roll of 20 degree is written 14.

The Simulator works with network packets with the following default values:

- SIMULATOR ADDRESS:PORT = 192.168.0.112:55555
- ClientPC ADDRESS:PORT = 192.168.0.100:55555

### Message packet structure to be send to the Simulator:

PROGR.	DATA	DESCRIPTION
0	”#”	Start of string, Character “#”, ASCII char. 35
1	“0”	Number ZERO
2	“2”	Number TWO
3	ROLL( 0 )	<b>Roll position with direction, 16bit number, Hexadecimal espression. Range from: -200 to +200 degrees.</b>
4	ROLL( 1 )	
5	ROLL( 2 )	
6	ROLL( 3 )	
7	ROLL_SPEED( 0 )	<b>Roll speed without sign, 16bit number, Hexadecimal espression. Range from: 0 to +99 value.</b>
8	ROLL_SPEED( 1 )	
9	PITCH( 0 )	<b>Pitch position with direction, 16bit number, Hexadecimal espression. Range from: -200 to +200 degrees.</b>
10	PITCH( 1 )	
11	PITCH( 2 )	
12	PITCH( 3 )	
13	PITCH_SPEED( 0 )	<b>Pitch speed without sign, 16bit number, Hexadecimal espression. Range from: 0 to +99 value.</b>
14	PITCH_SPEED( 1 )	
15	YAW( 0 )	<b>Yaw position with direction, 16bit number, Hexadecimal espression. Range from: -3600 to +3600 degrees.</b>  MINUS VALUES are for CounterClockWise rotation direction and PLUS VALUES are for ClockWise rotation direction
16	YAW( 1 )	
17	YAW( 2 )	
18	YAW( 3 )	
19	YAW_SPEED( 0 )	<b>Yaw speed without sign, 16bit number, Hexadecimal espression. Range from: 0 to +99 value.</b>
20	YAW_SPEED( 1 )	
21	NA	NOT USED
22	ACTIVE[0;1]	SET to “0” (number ZERO) for PASSIVE MODE (controlled by PC)
23	NA	NOT USED
24	NA	NOT USED
25	CHECKSUM( 0 )	SET TO “ABCD”, NOT USED AT THE MOMENT
26	CHECKSUM( 1 )	
27	CHECKSUM( 2 )	
28	CHECKSUM( 3 )	
29	<CR>	End of string. Carriage Return, ASCII Char. N. 13

### Example Message

**PASSIVE MODE selected;**

Pitch = 20degrees with speed of 20; Roll = 20deg. with speed of 20; Yaw = 20deg. with speed of 20.

**UDP Message = #02 0014 14 0014 14 0014 14 0 0 00 ABCD<CR>**

*NB. No spaces between each field, the ones in the above message example are for a better reading.*