

Version: 0.991

Last Update: 4 Feb 2021

```
/// Baud Rate: 57600 (default) or 115200.
/// Data packet: 8-bits, 1 stop bit and no parity bit.
/// --- Command packet from External Controller (EC) ---
/// [Command] + [Argument1] + [Argument2] + [Argument3] + [Argument4] + [Newline Character]
/// The Newline character corresponds to 0x0A.
///
/// --- Reply to EC ---
/// If [Command] is G:
/// [Description] + [Hundredth] + [Tenth] + [Digit] + [Newline Character]
/// Where [Description] indicates the type of parameters being reported back.
///
/// Else:
/// "OK" or "NO", each string ends with [Newline Character]
```

Notes:

[] – Denotes a byte (8-bits unsigned).

[‘a’] – Denotes sending one byte, with the ASCII value of character *a*.

[3] + [5] – Denotes sending two bytes, first byte has a value of 3, and second byte a value of 5.

[*] – Don’t care, the value in this byte is not used, can just set it to 0.

Master	Slave	Remarks
[‘S’]+[t1]+[t2]+[t3]+[Vol]+[‘\n’] Example: Beep tones 1, followed by 6, and 2, at volume setting 5. "S1625"	OK NO	Beep a series of 3 tones. t1, t2, t3 = ‘1’ to ‘9’, ‘1’ corresponds to lowest pitch, and ‘9’ to the highest pitch. Vol = Volume, ‘0’ to ‘5’, ‘0’ turns off the buzzer, ‘5’ is the highest volume.
[‘X’]+[*]+[*]+[*]+[*]+[‘\n’] Example: "X0000"	OK NO	Cancel all movements, stop the robot if it is moving or turning.
[‘F’]+[D]+[S0]+[*]+[*]+[‘\n’] Example: Move forward at slow speed. "F+100"	OK NO	Move at fix velocity. D = Direction, ‘-’ for backward, any other value for forward. S0 = Speed setting, from ‘1’ (slow) to ‘4’ (very fast).
[‘M’]+[ID]+[D]+[A1]+[A0]+[‘\n’] Example: Turn motor 0 shaft to +10 degrees. "M0+10"	OK NO	Set servo motor to a specific absolute angle given by A1, A0. ID = Motor ID, currently support 0 to 2 (3 motors) D = Direction, ‘-’ or any other values for ‘+’, with respect to center position of motor shaft. A1 = turn degree, tenth, ‘0’ to ‘9’. A0 = turn degree, unit, ‘0’ to ‘9’.
[‘D’]+[ID]+[D]+[A0]+[*]+[‘\n’] Example: Turn motor 0 shaft	OK NO	Set servo motor to A1 degree relative to current shaft position. ID = Motor ID, current support 0 to 2.

to +8 degrees from current position. "D0+80"		D = Direction, '-' or any other values for '+', with respect to current position of motor shaft. A0 = relative turn degree, unit, '0' to '9'.
['T']+['D']+['A2']+['A1']+['A0']+['\n'] Example: Turn left 5 degrees. "T+005"	OK NO	Turn by a fix degree. D = Turn direction, '-' right, any other value left. A2 = turn degree, hundreth, '0' to '9'. A1 = turn degree, tenth, '0' to '9'. A0 = turn degree, unit, '0' to '9'.
['G']+['P']+['*']+['*']+['*']+['\n'] Example: Request robot platform to send back binary packet containing robot vital parameters. "Gb000"	For P = 'D', 'B', 'F', 'V', 'A': ['P']+['V2']+['V1']+['V0']+['\n'] Where V2 = Hundredth, '0' to '9'. V1 = Tenth, '0' to '9'. V0 = Unit, '0' to '9'. For P = 'R': "OK" or "NO" For P = 'b': 'b' (byte0) + [Robot_Mode*] (byte1) + [Tit angle -127 to +127] (byte2) + [Heading upper 8 bits](byte3) + [Heading lower 8 bits](byte4) + [Front distance sensor output, 0-255mm](byte5) + [Distance move upper 8 bits](byte6) + [Distance move lower 8 bits](byte7)	Get robot platform parameters. The values return depends on the nature of hardware on the robot. P = Type of parameter: 'D' – Front distance sensor output, 0 to 255. 'B' – Battery level, 0 to 255. 'F' – Firmware version. Three characters. 'R' – Robot platform status, "OK" or "NO". 'A' – Tilt angle, "-99" to "+99" in degree. 'V' – Wheels average velocity, "-99" to "+99". 20 units = 1.0 revolution per second. 'b' – Send robot platform parameters in binary packet instead of ASCII characters. *bit3-0 represents the Robot Mode. Bit4 indicates whether Robot Controller is in manual (0) or auto mode (1). Bit 5 indicates whether the Robot platform collides with object or not (based on stability indices signature). Bit 6 indicates whether the Robot platform move or not, either voluntarily or involuntarily.