<<PC-MCUL32P_BLDC/PWM PLOTOCOL>>

Baud Rate	: 9600bps
Data Bits	: 8bit
Parity	: None
Stop Bits	: 1

Only Block Control Mode and Block Read Mode Use
MODE 1 Block Read – 0x8a, Block Control – 0x89
MODE 2 0x9F(default)
Differential pressure arrange -0.5 mmAq ~ 5 mmAq
FFU Speed value arrange 0 ~ 1300 Rpm
If mmAq Mode Select, **DATA SV** invalid(Don't care)
But LIU Mode Select, **DATA SV** valid

1. LCU BLOCK CONTROL

Host to MCUL32 Controller

	PC->MCUL	example		Information
Byte 1	STX	0x02	1	STX : Start bit
Byte 2	MODE1	0x89	1	MODE1 : Read or Write command : Read : 0x8a, Write : **0x89**
Byte 3	MODE2	0x9f	1	MODE2 : default value for reserve: 0x9f
Byte 4	MCUL_Bldc ID	0x81	1	MCUL_Bldc ID : Identification of MCUL Controller
Byte 5	DPU ID(Default)	0x9f	1	DPU ID : default value for reserve : 0x9f
Byte 6	Start LCU ID	0x81	1	Start LCU ID : Start Identification of FFU Controller**(if 1 unit : 0x81, if 2 unit : 0x82…)**
Byte 7	End LCU ID	0x81	1	End LCU ID : End Identification of FFU Controller
Byte 8	DATA SV	0x0a	1	DATA SV : Command Speed value of FFU(Set value arrange 0 ~ 1300RPM) (if Data SV set **1,000**rpm : 1000/10(default) = 100(dec) => **0x64(hex)**)
Byte 9	DATA mmAq LSV	0x64	1	DATA mmAq LSV : Command Low byte set value of Pressure
Byte 10	DATA mmAq HSV	0x00	1	DATA mmAq HSV : Command High byte set value of Pressure
Byte 11	CheckSum	0xb8	1	CheckSum : MODE1 + MODE2 + … + DATA mmAq HSV numeric sum (if the sum is 4A2C, the checksum is **2C**.)
Byte 12	ETX	0x03	1	ETX : End bit
			12 byte	

MCUL32 Controller to Host

	MCUL -> PC	example		Information
Byte 1	STX	0x02	1	
Byte 2	MODE1	0x89	1	
Byte 3	MODE2	0x9f	1	
Byte 4	MCUL_Bldc ID	0x81	1	
Byte 5	DPU ID(Default)	0x9f	1	
Byte 6	Start LCU ID	0x81	1	
Byte 7	End LCU ID	0x81	1	
Byte 8	Flag OK Data	0xb9	1	Flag OK Data : defalut value(0xB9)
Byte 9	CheckSum	0x03	1	
Byte 10	ETX	0x03	1	
			10 byte	

2. LCU BLOCK READ

Host to MCUL32 Controller

	PC->MCUL	example		Information
Byte 1	STX	0X02	1	STX : Start bit
Byte 2	MODE1	0X8a	1	MODE1 : Read or Write command : **Read : 0x8a**, Write : 0x89
Byte 3	MODE2	0x9f	1	MODE2 : default value for reserve: 0x9f
Byte 4	MCUL_Bldc ID	0x81	1	MCUL_Bldc ID : Identification of MCUL Controller
Byte 5	DPU ID(Default)	0x9f	1(0x9F)	DPU ID : default value for reserve : 0x9f
Byte 6	Start LCU ID	0x81	1	Start LCU ID : Start Identification of FFU Controller**(if 1 unit : 0x81, if 2 unit : 0x82…)**
Byte 7	End LCU ID	0x81	1	End LCU ID : End Identification of FFU Controller
Byte 8	CheckSum	0x4b	1	CheckSum : MODE1 + MODE2 + … + DATA mmAq HSV numeric sum (if the sum is 4A2C, the checksum is 2C.)
Byte 9	ETX	0x03	1	ETX : End bit
			9 byte	

MCUL32 Controller to Host

	MCUL -> PC	example		Information
Byte 1	STX	0x02	1	
Byte 2	MODE1	0x8a	1	
Byte 3	MODE2	0x9f	1	
Byte 4	MCUL_Bldc ID	0x81	1	
Byte 5	DPU ID(Default)	0x9f	1(0x9F)	
Byte 6	LCU ID	0x81	1	
Byte 7	DATA PV	0a	1	if mmAq Mode Select, This value is present speed value of FFU(if 0x0a(hex) -> 10(dec) : Present value = 10(dec) * 10(default) = 100 rpm
Byte 8	DATA AL&ST	0x80	1	DATA AL&ST : Alarm and Status of FFU(0x80:remote run, 0x81: local run, 0xa2 : Motor Error, 0xc0 : Abnormal State, 0x00 : No connection)
Byte 9	DATA SV	0a	1	if mmAq Mode Select, DATA SV is Invalid, This value is present value of FFU(if 0x0a(hex) -> 10(dec) : Present value = 10(dec) * 10(default) = 100 rpr
Byte 10	DATA mmAq LSV	0x64	1	DATA mmAq LSV : Low Byte value of Pressure if DATA mmAq LSV is 0x64 and DATA mmAq HSV is 0x00 read.. 0064(hex) -> 100(dec)/100 = 1 mmA
	DATA mmAq HSV	0x00	1	DATA mmAq HSV : High Byte value of Pressure ex) 01F4 -> 500(dec)/100 = 5 mmAq
	CheckSum	0x28	1	
	ETX	0x03	1	
			13 byte	

Data format :STX,Mode1,Mode2,Mcul ID,0x9F,Lcu1,dataPV,…,Lcu2,dataPV,…,Ch_Sum,ETX