M5Stack Unit BLDC Driver I2C Protocol

V1 (FW Version)
2023/12/5

REG MAP (Addr:0x65)			0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	note
Setup	Mode	0x00 W/R	Mode																0: open loop; 1: closed loop (After switching modes, pwm or rpm will be automatically set to 0)
	Direction[1]	0x60 W/R	Direction																0~1 (You need to set PWM to 0 or RPM to 0 and then restart to take effect)
	Motor Model (Can be save to flash)	0x70 W/R	Motor model	Pole Pairs															Motor model: 0: Low Speed; 1: High Speed Pole Pairs: 1~255
	Motor Status	0x80 R	Motor Status																0: Standby; 1: Running; 2: Error
Open loop control	PWM	0x10 W/R	PWM-L	PWM-H															0~2047
Closed loop control	Readback RPM Float	0x20 R	Readback RPM-byte0	Readback RPM-byte1	Readback RPM-byte2	Readback RPM-byte3													float, get Motor Readback RPM
	Readback RPM X100 Int	0x90 R	Readback RPM-byte0	Readback RPM-byte1	Readback RPM-byte2	Readback RPM-byte3													Readback RPM X100 = Readback RPM-byte0 + Readback RPM-byte1 * 256 + Readback RPM-byte2 * 65536 + Readback RPM-byte3 * 16777216
	Readback RPM String	0xB0 R																	The string ends with '/0' and the maximum number of characters is 15
	Readback Pulse Frequency Float (Hz)	0x30 R	Readback Pulse Frequency -byte0	Readback Pulse Frequency -byte1	Readback Pulse Frequency -byte2	Readback Pulse Frequency -byte3													float, get Motor Readback Pulse Frequency RPM = Readback Pulse Frequency * 60 / Pole Pairs
	Readback Pulse Frequency X100 Int (Hz)	0xA0 R	Readback Pulse Frequency -byte0	Readback Pulse Frequency -byte1	Readback Pulse Frequency -byte2	Readback Pulse Frequency -byte3													Readback Pulse X100 = Readback Pulse-byte0 + Readback Pulse-byte1 * 256 + Readback Pulse-byte2 * 65536 + Readback Pulse-byte3 * 16777216
	Readback Pulse Frequency String (Hz)	0xC0 R																	The string ends with '/0' and the maximum number of characters is 15
	Setting RPM Float	0x40 W/R	Setting RPM-byte0	Setting RPM-byte1	Setting RPM-byte2	Setting RPM-byte3													float, setting target rpm (Only valid in closed loop)
	Setting RPM X100 Int	0xD0 W/R	Setting RPM-byte0	Setting RPM-byte1	Setting RPM-byte2	Setting RPM-byte3													Setting RPM X100 = Setting RPM-byte0 + Setting RPM-byte1 * 256 + Setting RPM-byte2 * 65536 + Setting RPM-byte3 * 16777216 (Only valid in closed loop)
	PID X100 (Can be save to flash)	0x50 W/R	P-byte0	P-byte1	P-byte2	P-byte3	I-byte0	I-byte1	I-byte2	I-byte3	D-byte0	D-byte1	D-byte2	D-byte3					P/I/D: PID = PID-byte0 + PID-byte1 * 256 + PID-byte2 * 65536 + PID-byte3 * 16777216 For example: P=50.05, P setting value=50.05*100=5005, P-byte0=0x8D, P-byte1=0x13, P-byte2=0, P-byte3=0
System	Flash Writeback	0xF0 W	Flash Writeback																Write 1 save to flash
	Firmware Version	0xF0 R															Version		**Version:** firmware version number
	I2C Address (Can be save to flash)	0xF0 R/W																Address	**Address:** 1~127

[1] Change direction:
Step1: Setup direction
Step2: Set PWM or RPM to 0
Step3: Set PWM or RPM to a value more than 0