M5Stack Module 4EncodeMotor V1.1 I2C Protocol

	V3 (FW Version)
	2024/3/1

REG MAP (Addr:0x24)		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	note
Motor PWM Duty INT8	0x20 R/W	Motor1_PWM_Duty	Motor2_PWM_Duty	Motor3_PWM_Duty	Motor4_PWM_Duty													-127 ~ 127
Motor Encoder INT32	0x30 R/W	Motor1_Encoder-byte0	Motor1_Encoder-byte1	Motor1_Encoder-byte2	Motor1_Encoder--byte3	Motor2_Encoder-byte0	Motor2_Encoder-byte1	Motor2_Encoder-byte2	Motor2_Encoder--byte3	Motor3_Encoder-byte0	Motor3_Encoder-byte1	Motor3_Encoder-byte2	Motor3_Encoder--byte3	Motor4_Encoder-byte0	Motor4_Encoder-byte1	Motor4_Encoder-byte2	Motor4_Encoder--byte3	Motor Encoder = Motor Encoder-byte0 + Motor Encoder-byte1 * 256 + Motor Encoder-byte2 * 65536 + Motor Encoder-byte3 * 16777216
Motor Speed INT8	0x40 R	Motor1_Speed	Motor2_Speed	Motor3_Speed	Motor3_Speed													-127 ~ 127 Motor encoder increments every 20 ms
Motor1 Mode[1]	0x50 R/W	Motor1_Mode	Motor1_Position_P	Motor1_Position_I	Motor1_Position_D	Motor1_Position_Point-Byte0	Motor1_Position_Point-Byte1	Motor1_Position_Point-Byte2	Motor1_Position_Point-Byte3	Motor1_Position-MAX-Speed	Motor1_Speed_P	Motor1_Speed_I	Motor1_Speed_D	Motor1_Speed_Point				
Motor2 Mode[1]	0x60 R/W	Motor2_Mode	Motor2_Position_P	Motor2_Position_I	Motor2_Position_D	Motor2_Position_Point-Byte0	Motor2_Position_Point-Byte1	Motor2_Position_Point-Byte2	Motor2_Position_Point-Byte3	Motor2_Position-MAX-Speed	Motor2_Speed_P	Motor2_Speed_I	Motor2_Speed_D	Motor2_Speed_Point				
Motor3 Mode[1]	0x70 R/W	Motor3_Mode	Motor3_Position_P	Motor3_Position_I	Motor3_Position_D	Motor3_Position_Point-Byte0	Motor3_Position_Point-Byte1	Motor3_Position_Point-Byte2	Motor3_Position_Point-Byte3	Motor3_Position-MAX-Speed	Motor3_Speed_P	Motor3_Speed_I	Motor3_Speed_D	Motor3_Speed_Point				
Motor4 Mode[1]	0x80 R/W	Motor4_Mode	Motor4_Position_P	Motor4_Position_I	Motor4_Position_D	Motor4_Position_Point-Byte0	Motor4_Position_Point-Byte1	Motor4_Position_Point-Byte2	Motor4_Position_Point-Byte3	Motor4_Position-MAX-Speed	Motor4_Speed_P	Motor4_Speed_I	Motor4_Speed_D	Motor4_Speed_Point				
VIN Current Float (A)	0x90 R	current-byte0	current-byte1	current-byte2	current-byte3													float
VIN Current X100 Int (A)	0xC0 R	VIN Current X100-byte0	VIN Current X100-byte1	VIN Current X100-byte2	VIN Current X100-byte3													VIN Current X100 Int = VIN Current X100-byte0 + VIN Current X100-byte1 * 256 + VIN Current X100-byte2 * 65536 + VIN Current X100-byte3 * 16777216
VIN ADC 8bits[2]	0xA0 R	ADC Value 8bits																Vaule: 0~255
VIN ADC 12bits[3]	0xB0 R	ADC Value 12bits-L	ADC Value 12bits-H															Vaule: 0~4095
Encoder AB or BA	0xD0 R/W	Encoder AB or BA																Vaule: 0~1 0: AB(Default) 1: BA * Need to restart module to affect * Writing to this register will save the value to flash. Please do not write to this register frequently to prevent flash damage.
Soft start and stop	0xD0 R/W		Soft start and stop															Soft start and stop(0:disable, 1:enable): bit0: Motor1 bit1: Motor2 bit2: Motor3 bit3: Motor4
Firmware Version	0xF0 R														Version			Version: firmware version number
I2C Address	0xF0 R/W																Address	Address: 1~127 Writing to this register will save the value to flash. Please do not write to this register frequently to prevent flash damage.

[1] (1)Mode:
0:Normal(Open loop)
1: Position Lock
2: Speed Lock
(2)P/I/D: 0~255
(3)Motor_Position_Point = Motor_Position_Point-byte0 + Motor_Position_Point-byte1 * 256 + Motor_Position_Point-byte * 65536 + Motor_Position_Point-byte3 * 16777216
(4)Motor_Position-MAX-Speed: -127 ~ 127
(5)Motor_Speed_Point: -127 ~ 127

[2] Voltage = ADC Value 8bits/255*3.3/0.16

[3] Voltage = ((ADC Value 12bits-L) + (ADC Value 12bits-H)*256)/255*3.3/0.16