

M5Stack Unit Byte Button I2C Protocol																	V1 (FW Version)	
REG MAP (Addr:0x47)		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	note
Read	Byte of Button Value (Each button value is combined into one byte)	0x00 R	Byte of Button Value														Byte of Button Value: bit0: button 0; bit1: button 1; bit2: button 2; bit3: button 3; bit4: button 4; bit5: button 5; bit6: button 6; bit7: button 7;	
	Button Value (Each button value is a separate byte)	0x60 R	Button0	Button1	Button2	Button3	Button4	Button5	Button6	Button7								ButtonX: 0-1
LED	LED Brightness & LED Show Mode	0x10 W/R	LED0 Brightness	LED1 Brightness	LED2 Brightness	LED3 Brightness	LED4 Brightness	LED5 Brightness	LED6 Brightness	LED7 Brightness	LED8 Brightness	LED Show Mode (Can be save to flash)						LED Brightness: 0-255  LED Show Mode: 0: Self define 1: Sys define
LED Self define	RGB888 (Self define)	0x20 W/R	LED0_RGB-B	LED0_RGB-G	LED0_RGB-R		LED1_RGB-B	LED1_RGB-G	LED1_RGB-R		LED2_RGB-B	LED2_RGB-G	LED2_RGB-R		LED3_RGB-B	LED3_RGB-G	LED3_RGB-R	
		0x30 W/R	LED4_RGB-B	LED4_RGB-G	LED4_RGB-R		LED5_RGB-B	LED5_RGB-G	LED5_RGB-R		LED6_RGB-B	LED6_RGB-G	LED6_RGB-R		LED7_RGB-B	LED7_RGB-G	LED7_RGB-R	
		0x40 W/R	LED8_RGB-B	LED8_RGB-G	LED8_RGB-R													
	RGB233 <sup>[1]</sup> (Self define)	0x50 W/R	LED0	LED1	LED2	LED3	LED4	LED5	LED6	LED7	LED8							RGB233: bit6-bit7:R bit3-bit5:G bit0-bit2:B
LED Sys define	RGB888 Button=0 define (Can be save to flash)	0x70 W/R	LED0_RGB-B	LED0_RGB-G	LED0_RGB-R		LED1_RGB-B	LED1_RGB-G	LED1_RGB-R		LED2_RGB-B	LED2_RGB-G	LED2_RGB-R		LED3_RGB-B	LED3_RGB-G	LED3_RGB-R	
		0x80 W/R	LED4_RGB-B	LED4_RGB-G	LED4_RGB-R		LED5_RGB-B	LED5_RGB-G	LED5_RGB-R		LED6_RGB-B	LED6_RGB-G	LED6_RGB-R		LED7_RGB-B	LED7_RGB-G	LED7_RGB-R	
	RGB888 Button=1 define (Can be save to flash)	0x90 W/R	LED0_RGB-B	LED0_RGB-G	LED0_RGB-R		LED1_RGB-B	LED1_RGB-G	LED1_RGB-R		LED2_RGB-B	LED2_RGB-G	LED2_RGB-R		LED3_RGB-B	LED3_RGB-G	LED3_RGB-R	
		0xA0 W/R	LED4_RGB-B	LED4_RGB-G	LED4_RGB-R		LED5_RGB-B	LED5_RGB-G	LED5_RGB-R		LED6_RGB-B	LED6_RGB-G	LED6_RGB-R		LED7_RGB-B	LED7_RGB-G	LED7_RGB-R	
System	Flash write back	0xF0 R/W	Flash write back														write 1 save to flash	
	IRQ Setup <sup>[2]</sup> (Can be save to flash)	0xF0 R/W	IRQ Setup														0: Disable; 1: Enable need to restart	
	Firmware Version	0xF0 R														Version: firmware version number		
	I2C Address (Can be save to flash)	0xF0 R/W														Address: 1-127		

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[1] RGB888->RGB233
uint8_t rgb888_to_rgb233(uint32_t color)
{
    uint8_t r_led, g_led, b_led, rgb_233;

    r_led = ((color >> 16) & 0xff);
    g_led = ((color >> 8) & 0xff);
    b_led = (color & 0xff);

    rgb_233 = ((r_led & 0xC0) | ((g_led & 0xE0) >> 2) | ((b_led & 0xE0) >> 5));

    return rgb_233;
}
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[2] IRQ Setup = 1, SWDIO(PA13) will become IRQ pin. When the button state changes, the IRQ pin is pulled low. After reading register 0H, IRQ will be pulled high again (high level when idle)  
 IRQ Setup = 0, IRQ Disable.