

| M5Stack Unit 8Encoder I2C Protocol                   |             |            |                              |                       |            |            |            |            |            |                   |                   |                   |                   |                   |                   |                   | V2 (FW Version)   |  |  |  |
|--|-------------|------------|------------------------------|-----------------------|------------|------------|------------|------------|------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--|--|--|
|  |             |            |                              |                       |            |            |            |            |            |                   |                   |                   |                   |                   |                   |                   | 2024/5/22         |  |  |  |
| REG MAP (Addr:0x41)                                  |             | 0          | 1                            | 2                     | 3          | 4          | 5          | 6          | 7          | 8                 | 9                 | A                 | B                 | C                 | D                 | E                 | F                 | note   |  |  |
| Counter Value  | 0x00<br>R/W | Cnt0-byte0 | Cnt0-byte1                   | Cnt0-byte2            | Cnt0-byte3 | Cnt1-byte0 | Cnt1-byte1 | Cnt1-byte2 | Cnt1-byte3 | Cnt2-byte0        | Cnt2-byte1        | Cnt2-byte2        | Cnt2-byte3        | Cnt3-byte0        | Cnt3-byte1        | Cnt3-byte2        | Cnt3-byte3        | Cnt: -2147483648-2147483647<br>(will be reset after set reg 0x40)  |  |  |
|  | 0x10<br>R/W | Cnt4-byte0 | Cnt4-byte1                   | Cnt4-byte2            | Cnt4-byte3 | Cnt5-byte0 | Cnt5-byte1 | Cnt5-byte2 | Cnt5-byte3 | Cnt6-byte0        | Cnt6-byte1        | Cnt6-byte2        | Cnt6-byte3        | Cnt7-byte0        | Cnt7-byte1        | Cnt7-byte2        | Cnt7-byte3        |  |  |  |
| Increment Value                                      | 0x20<br>R   | Inc0-byte0 | Inc0-byte1                   | Inc0-byte2            | Inc0-byte3 | Inc1-byte0 | Inc1-byte1 | Inc1-byte2 | Inc1-byte3 | Inc2-byte0        | Inc2-byte1        | Inc2-byte2        | Inc2-byte3        | Inc3-byte0        | Inc3-byte1        | Inc3-byte2        | Inc3-byte3        | Inc: -2147483648-2147483647<br>(will be reset after get)   |  |  |
|  | 0x30<br>R   | Inc4-byte0 | Inc4-byte1                   | Inc4-byte2            | Inc4-byte3 | Inc5-byte0 | Inc5-byte1 | Inc5-byte2 | Inc5-byte3 | Inc6-byte0        | Inc6-byte1        | Inc6-byte2        | Inc6-byte3        | Inc7-byte0        | Inc7-byte1        | Inc7-byte2        | Inc7-byte3        |  |  |  |
| Counter Reset  | 0x40<br>W   | Cnt0-RST   | Cnt1-RST                     | Cnt2-RST              | Cnt3-RST   | Cnt4-RST   | Cnt5-RST   | Cnt6-RST   | Cnt7-RST   |                   |                   |                   |                   |                   |                   |                   |                   | RST: write 1 to reset counter  |  |  |
| Button Value   | 0x50<br>R   | BNT0       | BNT1                         | BNT2                  | BNT3       | BNT4       | BNT5       | BNT6       | BNT7       |                   |                   |                   |                   |                   |                   |                   |                   | BNT: 0~1   |  |  |
| Button Toggle Count                                  | 0x50<br>R/W |            |                              |                       |            |            |            |            |            | BNT0 Toggle Count | BNT1 Toggle Count | BNT2 Toggle Count | BNT3 Toggle Count | BNT4 Toggle Count | BNT5 Toggle Count | BNT6 Toggle Count | BNT7 Toggle Count | Button toggle counting, reset to zero after reading  |  |  |
| Switch& Encoder change flag&One Byte Button register | 0x60<br>R   | SW value   | Byte of Encoders change flag | Byte of Buttons value |            |            |            |            |            |                   |                   |                   |                   |                   |                   |                   |                   | SW Value: 0~1  |  |  |
|  |             |            |                              |                       |            |            |            |            |            |                   |                   |                   |                   |                   |                   |                   |                   | Byte of Encoders change flag(0:not change, 1:changed):<br>bit0: channel 0<br>bit1: channel 1<br>bit2: channel 2<br>bit3: channel 3<br>bit4: channel 4<br>bit5: channel 5<br>bit6: channel 6<br>bit7: channel 7<br>reset to zero after reading<br><br>Byte of Buttons value(0:press, 1:no press):<br>bit0: button 0<br>bit1: button 1<br>bit2: button 2<br>bit3: button 3<br>bit4: button 4<br>bit5: button 5<br>bit6: button 6<br>bit7: button 7 |  |  |
| RGB  | 0x70<br>R/W | LED0-R     | LED0-G                       | LED0-B                | LED1-R     | LED1-G     | LED1-B     | LED2-R     | LED2-G     | LED2-B            | LED3-R            | LED3-G            | LED3-B            | LED4-R            | LED4-G            | LED4-B            | LED5-R            | R/G/B: 0~255   |  |  |
|  | 0x80<br>R/W | LED5-G     | LED5-B                       | LED6-R                | LED6-G     | LED6-B     | LED7-R     | LED7-G     | LED7-B     | LED8-R            | LED8-G            | LED8-B            |                   |                   |                   |                   |                   |  |  |  |
| Firmware Version                                     | 0xF0<br>R   |            |                              |                       |            |            |            |            |            |                   |                   |                   |                   |                   |                   | Version           |                   | Version: firmware version number   |  |  |
| I2C Address  | 0xF0<br>R/W |            |                              |                       |            |            |            |            |            |                   |                   |                   |                   |                   |                   | Address           |                   | Address: 1~127   |  |  |