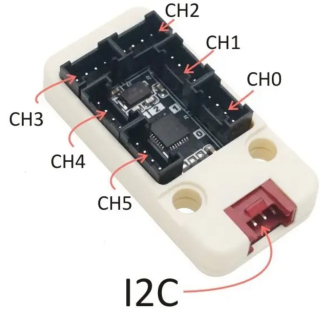


Description

PbHUB is an expander for single-bus GROVE PORT(B)Black port on M5Stack (Base). 1-to-6-PortB can be used as GPIO and analog in two data lines connected to GPIO26 and GPIO28 on ESP32. Same as PbHUB, it provides a solution for multiple device control by PORTB. With PbHUB each of the IO can be configured to input, output and analog in as you like. Unfortunately this Unit is untested. It is build with a MEGA328, with a simple driver firmware inside.

Notice! Please pay attention to the channel order while programming



Notice! Not all M5Stack with Port(B)Black is able to be extended by PbHUB. PbHUB can only apply to basic single-bus communications like digital read and write, analog read and write, which is implemented by I2C protocol(MEGA328 inside). The mechanism of PbHUB as an extension of PortB which implement the single-bus data transfer, is using the resource on Mega328 include GPIO 40, 41 pins, to implement the functionality of digital read and write, analog read and write. So there must be exceptions in which case a PbHUB is not a option. For example, PortB M5Stack like WEIGH (HX711 inside), whose communication protocol is applied more than just analog read, instead with a timing sequence. In that case PbHUB can't be helpful driving those device or sensor. See the below picture for timing sequence of HX711:

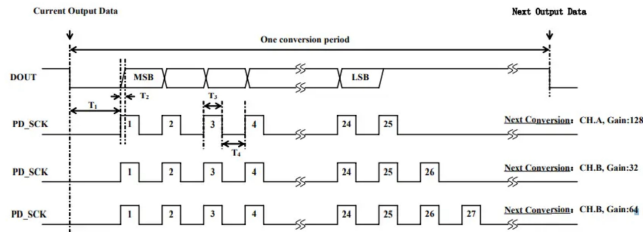


Fig.2 Data output, input and gain selection timing and control

Product Features

- High-Bus-Speed(GROVE)Expander
- The Logic-compatible: 5V
- 1-Set
- Product Size : 48.2mm x 24.2mm x 11mm
- Product weight : 4.8g

Kit Includes

- 1x PbHUB Unit
- 1x Grove Cable

EasyLoader

[Click to download EasyLoader](#)

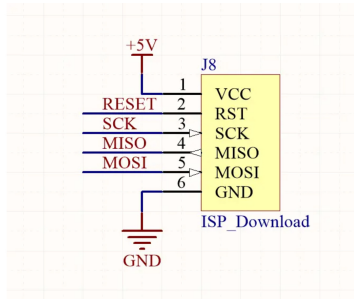
EasyLoader is a simple and fast program burner. Every product page in EasyLoader provides a product-related case program. It can be burned to the master through simple steps, and a series of function verification can be performed.

After downloading the software, double-click to run the application, connect the MS device to the computer through the data cable, select the port presentation, click "Burn" to start burning. (For M5Stack burning, please set the baud rate to "78000" or "115200")

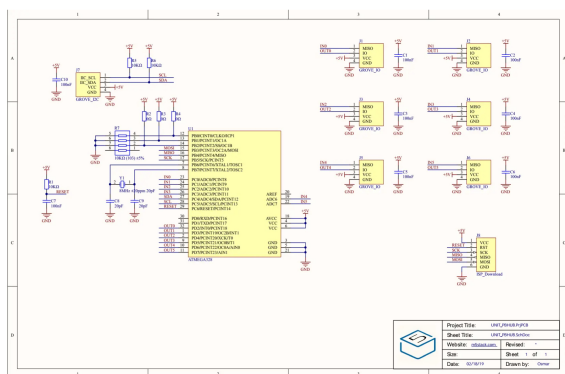
Currently EasyLoader is only suitable for Windows operating system, compatible with MS system adapter. ESP32 is the control core here. Before installing for M5Stack, you need to install CP210X driver (you do not need to install with M5Stack as control). [Click here to view the driver installation manual](#)

PinMap

Mega328 ISP/Download interface Pin foot definition



Schematic



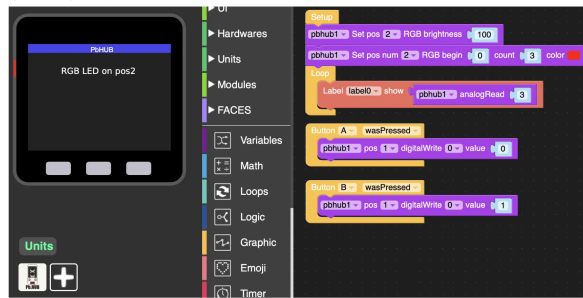
Example

1. Arduino IDE

The code below is incomplete. To get complete code, please click [here](#)

2. UIFlow

If you want the complete code, please click [here](#)



pinMode (pin -> IO)

digitalWrite (pin -> IO)

analogRead (pin -> IO)

digitalWrite (pin -> IO)

analogRead (pin -> IO)

state

state	IO0	Digital Write	IO1	Digital Write	IO0	Analog Write	IO1	Analog Write	IO0	Digital Read	IO1	Digital Read	IO0	Analog Read	reserve	Set RGB LED Num.	Set oneLED Color*	Set moreLED Color*	Set Brightness
r/w	w	w	w	w	r	r	r	r	w	w	w	w	w	w		w	w	w	w
data length (Byte)	1	1	1	1	1	1	1	1	2	/	2	5	7	1					
ch0 cmd	40	41	42	43	44	45	46	47	48	49	4A	4B							
ch1 cmd	50	51	52	53	54	55	56	57	58	59	5A	5B							
ch2 cmd	60	61	62	63	64	65	66	67	68	69	6A	6B							
ch3 cmd	70	71	72	73	74	75	76	77	78	79	7A	7B							
ch4 cmd	80	81	82	83	84	85	86	87	88	89	8A	8B							
ch5 cmd	A0	A1	A2	A3	A4	A5	A6	A7	A8	A9	AA	AB							