

# **MOTION:BIT Pro**

# **Simplifying Motion Control with micro:bit**



Datasheet

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## **1. BOARD LAYOUT & FUNCTION**



#### Figure 1: MOTION:BIT Pro Board Functions

Function	Description		
GPIO Status LEDs	LED indicator for digital IO. Turn on when the IO state is high.		
GPIOs Breakout	Micro:bit GPIOs breakout. Arranged in color-coded GVS format. With 3.3V power output for each GPIO. These pins are broken out: P0 P1 P2 Button A Button B P9 P12 P13 P14 P15 P16		
	IST SH 4 Ways Connector for external modulos		
	Compatible with Qwiic, STEMMA QT and Grove (Via Conversion Cable).		
Maker Ports	These pins are available on Maker Ports: P0-P9, P1-P2, P2-P12		
micro:bit Socket	Plug in micro:bit here. Make sure the LEDs on micro:bit are facing out.		
5V Supply	5V output for external sensors/modules.		
Maker Port (I2C)	JST-SH 4-Ways Connector for external modules. Compatible with Qwiic, STEMMA QT and Grove (Via Conversion Cable).		
	This port is for I2C modules only.		
I2C Breakout	Breakout of micro:bit I2C pins.		
Motor Test Buttons	Press to test the functionality of the motor driver. Motor will run at full speed.		

#### Simplifying Digital Making Datasheet - MOTION:BIT Pro

Servos Port	Connectors for 8x RC servo motors. V+ voltage is equal to power source voltage.				
Motor Terminals	Connect to the motor terminal. Motor voltage at full speed is equal to power source voltage. Motor direction is dependent on the polarity.				
RGB LEDs	User programmable WS2812B RGB LEDs. Connected to P8.				
Ext. RGB LED	For external WS2812B RGB LEDs. Daisy-chained to onboard RGB LED. (Connected to Dout pin of RGB LED 1).				
On/Off Switch	Turn On/Off the power.				
Ext. On/Off Switch	Header for external On/Off switch. The onboard switch must be in Off position to use the external switch.				
Micro USB	Micro USB port for charging the battery or power up the Motion:Bit. No data transmission on this port.				
Power/Charge LED	<ul> <li>LED indicator for:</li> <li>Power - Turn on whenever the board is powered up.</li> <li>Charge - Turn on when charging is in progress. Turn off when full.</li> </ul>				
Power Input	Terminal for external 7V - 12V power input. Can be used for external LiPo or 4x AA batteries.				
Motor Status LEDs	Turn on when the motor is running.				
Servo Power Selection	<ul> <li>Use header pin jumper to choose to power source for the servo pins VCC1 and VCC2.</li> <li>5V (internal buck converter).</li> <li>Or</li> <li>Directly from VIN (7V - 12V).</li> </ul>				
	voltage input VIN, else it might damage your servo.				

Table 1: MOTION:BIT Pro Board Functions

# **2. SPECIFICATIONS**

No	Parameters			Max	Unit
1	Power Input Voltage			16	V
2	Analog Input Voltage			3.3	V
3	Total +3V3 Output Current (GPIO Breakout & Grove Ports)		-	200	mA
4	4 Total +5V Output Current			3	А
5	Maximum DC Mator Current	Continuous	-	3	A
	Maximum DC Motor Current	Peak (< 5 seconds)	-	5	A

Table 2: MOTION:BIT Pro Absolute Maximum Ratings

# **3. DIMENSION**



Figure 2: MOTION:BIT Pro Dimension

### **4. INTERFACE**



Figure 3: Connection Diagram for Brushed DC Motor.

Add <u>MOTION:BIT Extension</u> in <u>MakeCode Editor</u> to control the DC Motors and Servo Motors.

\* Actual motor direction is depending on the motor connection. Swapping the connection (MA & MB) will reverse the direction.

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