

BOM DIY Flow Bench official shield Version 2.0

<https://diyflowbench.com>

	Name	Designator	Footprint	Quantity	Manufacturer Part	Manufacturer	Supplier	Supplier Part
1	330nF	C1	3MM_X_7.5MM_W/_5MM_LEADS_AT_5MM	1	CT4-0805Y334M500	CT4-0805Y334M500	LCSC	C3784
2	10nF	C2,C5,C19	3MM_X_7.5MM_W/_5MM_LEADS_AT_5MM	3	CT4-0805B103K500F3	FH	LCSC	C94713
3	1uF	C3,C6,C7,C8,C20	3MM_X_7.5MM_W/_5MM_LEADS_AT_5MM	5	CT4-0805B105K500F3	FH	LCSC	C94708
4	330nF	C4,C18	3MM_X_7.5MM_W/_5MM_LEADS_AT_5MM	2	CT4-0805Y334M500	ReliaPro	LCSC	C3784
5	mini blade fuse holder	F2	BLADE FUSE PCB V	1	?			
6	BME280	M1	BME280 I2C	1				
7	DC005-2.1MM Socket	P1	RS-PRO 884-0957 DC005-2.1MM	1	RS PRO Through Hole DC Power Socket	RS	RS-Online	884-0957
8	ULN2003A-DIP16	Q14	DIP-16 L20.4-W5.8-P2.54-LS7.6-BL	1	ULN2003A-DIP16	MIXIC	LCSC	C112203
9	10KΩ(1002)	R1,R2,R3,R4,R5,R6,R7,R13,R14,R15,R16,R17,R18,R19,R20	RESISTOR	15	MF1/4W-10KΩ±1% T52	CCO	LCSC	C119347
10	0Ω(LINK)	R8	RESISTOR	1	MF1/4W-10KΩ±1% T52	CCO	LCSC	C119347
11	4k7Ω	R9,R10,R11,R12	RESISTOR	4				
12	SPARKFUN PCA9306 V2	U2	PCA9306 LEVEL TRANSLATOR BREAKOUT V2	1				
13	MPX4250AP	U3,U4,U5	FREESCALE_CASE_867B-04	3	?			
14	DRV8825 Stepper Motor Driver Module	U6,U99	DRV8825 STEPPER MOTOR DRIVER CARRIER	2	DRV8825 Stepper Motor Driver Module			
15	ADS1015-ADAFRUIT	U7	ADS1015_MODULE	1	ADS1015_12Bit	Adafruit		
16	LM2596S DC-DC	U8,U9	LM2596S	2	OZ0055	-	QLOUNI	-
17	MPXV7007DP	U13,U14,U15	SENSOR-SMD_MPXV7007DP	3	MPXV7007DP	NXP(恩智浦)	LCSC	C881771
18	WEMOS D1 R32	U100	WEMOS_ESP32_D1	1				
19	SD_CARD_MODULE	U101	SD_CARD	1				
20	09 18 516 7913	X1,X2	918516X913	2				

NOTES: PCB is designed to fit standard Hammond 100mm x 120mm 1455 series cases such as the 1455K1201 (100mm x 120mm x 40mm)
Standard tolerance components can be used but more accurate results may be obtained by using higher tolerance components
Both MPXV7007DP (U13,U14,U15) and MPX4250AP (U3,U4,U5) are connected to the same inputs using different footprints. This is to allow either style of sensor to be used. U13 is connected to U3, U14 to U4 and U15 to U5
Sensor designations are printed on the PCB: U3/13 is Ref Pressure. U4/14 is Differential Pressure. U5/15 is Pitot
Pololu 'Step Stick' style stepper drivers are used for stepper drivers and can be either A4988 or DRV8825 (Preferred). The DRV8825 can handle higher motor currents
Edge connectors are standard IDE style ribbon connectors. This allows pre-made ribbon cables to be used for wiring loom. Pin spacing is standard 2.54mm so is also compatible with other pin headers or direct cable soldering
ULN2003A Darlington Array allows switching of 12v devices at mas 500mA such as relays for control of vac motors and other peripherals. Please note that the ULN2003 switches the 0v line of the load to ground
DC power jack is same as ESP / Arduino. You can desolder and re-use the connector that came on your ESP32
U8 and U9 are LM2596S DC-DC buck style converters. You wil need one 3.3v and one 5v version. Alternatively you can use adjustable units and dial the output voltages in as required
Standard blade fuse holder with 3 amp fuse is required for board protection. Fuse can be derated as required.
BME / ADC / PCA footprints may differ from whatever BOB you purchase. BOBs can easlily be connected using jumper wires if required.